LDW280-18426 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54526	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54526	LM-4(34)	1
LM	LDW280-23526	LTA-3(13)	1
PART NO. LDW280-18426-13		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 YC(00) MP-16A 1/25/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1997

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY MARKARIAN & ENGEL 1/19/68

LAYOUT BY J. ANDERSON 8/18/67

CHECKED BY WCG 1/22/68

GRP LEADER

VEH DES INT PUSATERI 8/17/67

SUPPORT

STRESS N.M. 8/17/67

WEIGHTS

RELIABILITY

PROJ ENGR W.R.B. 8/17/67

REL GROUP J.R.T 8/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE END BULKHEAD-FWD-+Z

SIZE B

CODE IDENT NO. 26512

LDW280-18426 A Ⓐ

SCALE NONE

SHEET 1.00 OF 5

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00, 1.10 2.00, 3.00 & 4.00				✓		EO A1 LCD1997	EOA1, INITIAL DWG RELEASE PART MADE PER EO	LTA-3 & LM-4 THRU LM-15	NOT	REQD	MARKARIAN & ENG. L JAN. 19, 1968		
	2	3.00				✓		LEO280-696 LCD1997	ADDED NOTE 7, REMOVED NOTES# 2,3,4,5 & 6.						
	3	1.00, 2.00 & 3.00				✓		LEO280-698 LCD 1997	ADDED -13, REMOVED -11.			✓			
	4	1.10, 2.00 & 3.00				✓		LCD 1997 (E)	REF EO A1, EOA2 (LEO280-696), & EOA3 (LEO280-698): ALL NOTES NOT APPLICABLE. ADDED NOTES #1, 2, 3 & 4. WCG		NOT	REQD		T.S. 1-22-68	1-24-68

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	SUPPORT	STRESS			
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18426	A (A)
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18426-13	S		WEB	AL ALLOY SHT	QQ-A-250/12	7075-T6	.040 x 56 3/4 x 68 7/8	SEE NO	TE 4	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH LPC-19-2(GRUMMAN), LPC-19-3 (VENDOR)

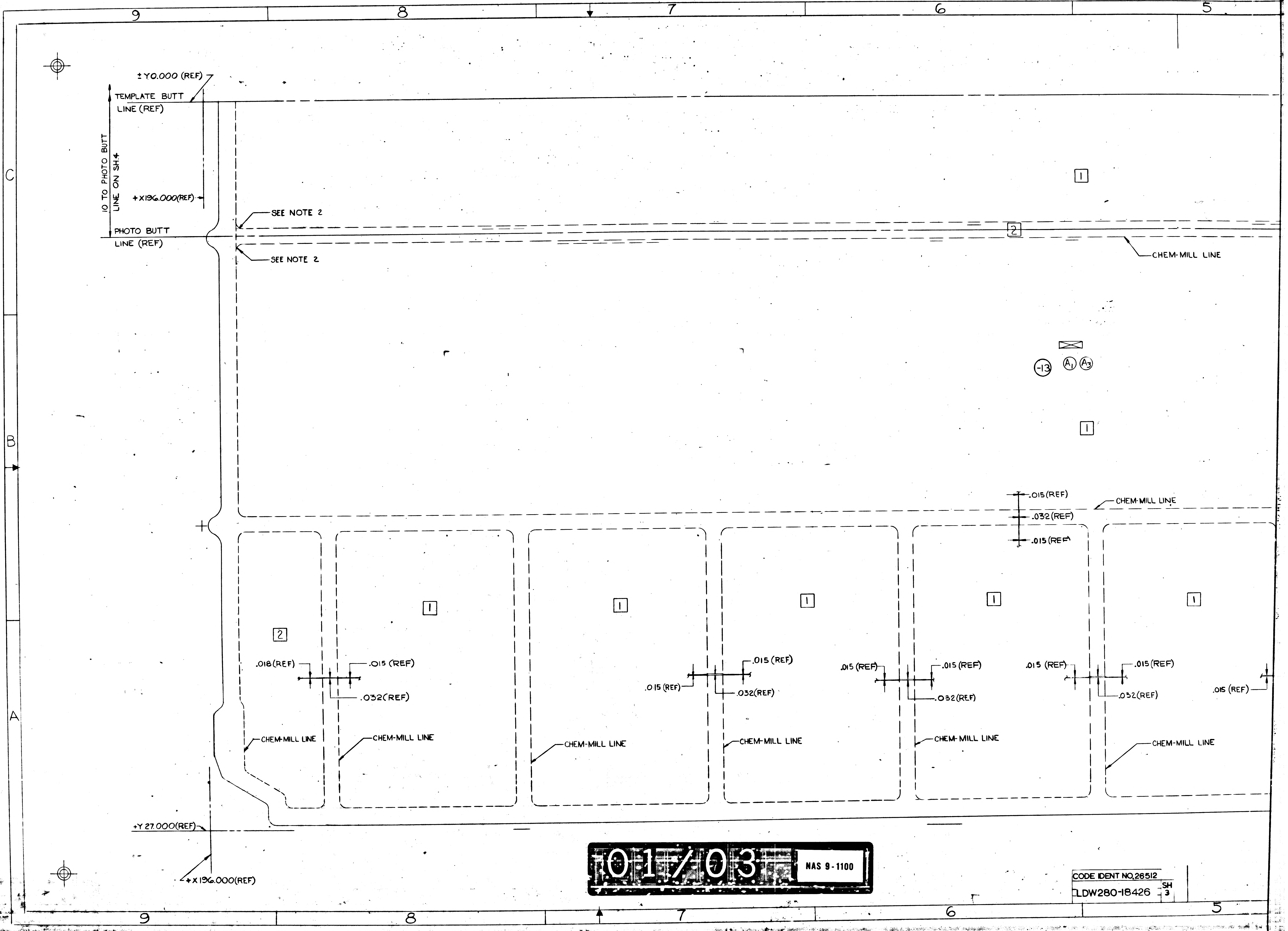
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18426	A Ⓐ
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

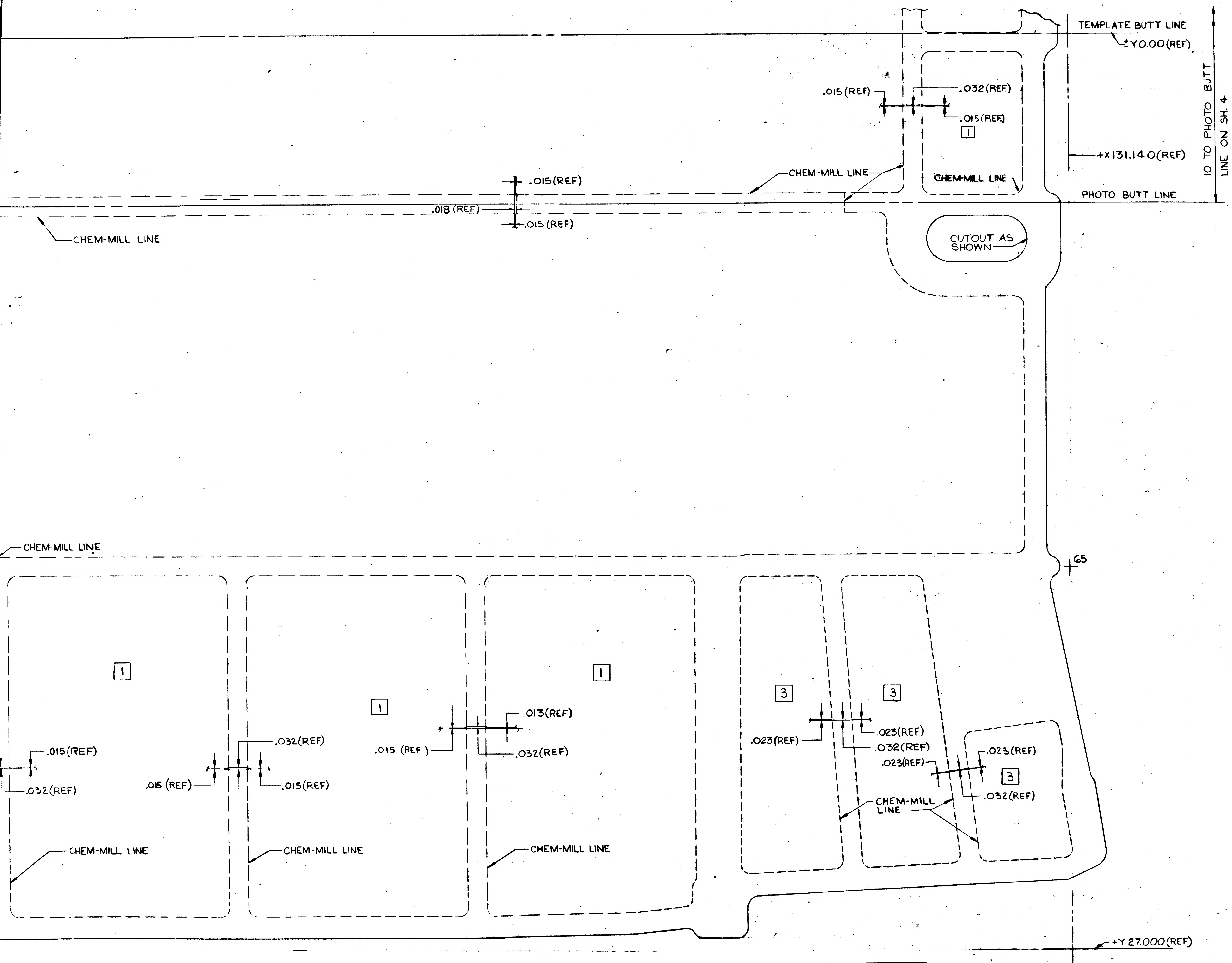
01

NAS 9-1100


9
8
7
6
5
C
B
A
±Y0.000 (REF)
TEMPLATE BUTT LINE (REF)
10 TO PHOTO BUTT LINE ON SH.4
+X196.000(REF)
PHOTO BUTT LINE (REF)
SEE NOTE 2
SEE NOTE 2
1
2
CHEM-MILL LINE
-13
A1
A3
1
.015(REF)
.032(REF)
.015(REF)
CHEM-MILL LINE
2
1
1
1
1
1
.018(REF)
.015 (REF)
.032(REF)
.015 (REF)
.015 (REF)
.032(REF)
.015 (REF)
.015 (REF)
.032(REF)
.015 (REF)
.015 (REF)
.032(REF)
.015 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
+Y 27.000(REF)
+X196.000(REF)

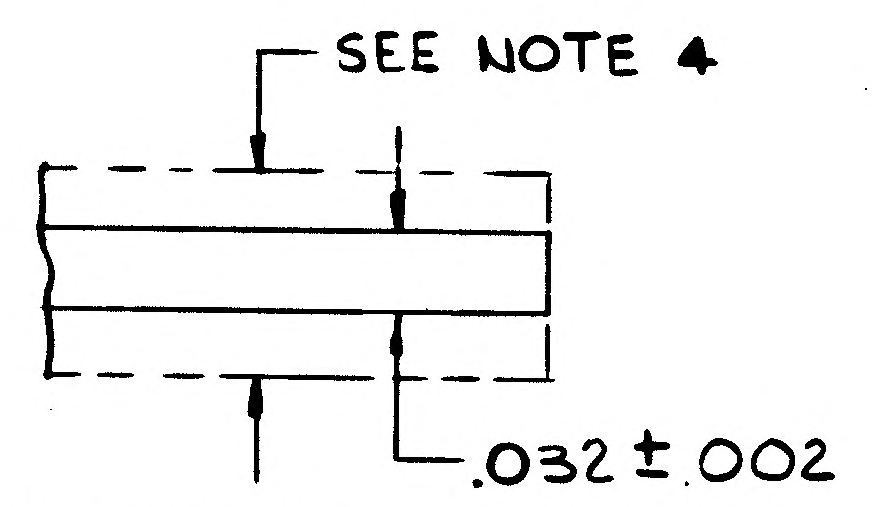
01/03 NAS 9-1100

CODE IDENT NO.26512
LDW280-18426 SH 3


TEMPLATE BUTT LINE
Y0.00(REF)
.015(REF)
.032(REF)
.015(REF)
1
10 TO PHOTO BUTT LINE ON SH. 4
+X131.140(REF)
CHEM-MILL LINE
CHEM-MILL LINE
.015(REF)
.018(REF)
.015(REF)
PHOTO BUTT LINE
CHEM-MILL LINE
CUTOUT AS SHOWN
CHEM-MILL LINE
65
1
1
1
3
3
3
.015(REF)
.032(REF)
.032(REF)
.015(REF)
.015(REF)
.013(REF)
.015 (REF)
.032(REF)
.023(REF)
.023(REF)
.032(REF)
.023(REF)
.023(REF)
.032(REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
+Y27.000(REF)
+X131.140(REF)

80
30

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART.
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
3. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18426-13 IS SIMILAR TO LDW280-17126-23.
4. FABRICATE WEB PER LPC280-43


SEE NOTE 4
.032 ± .002

FOR ENGRG REF ONLY- NO SCALE

LDW280-18426-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) *
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ± .002	.017 (REF)
2	.018 ± .002	.014 (REF)
3	$.023^{+.003}_{-.002}$	.009 (REF)

02/03 NAS 9-1100

IDENT NO.26512
280-18426 SH 3

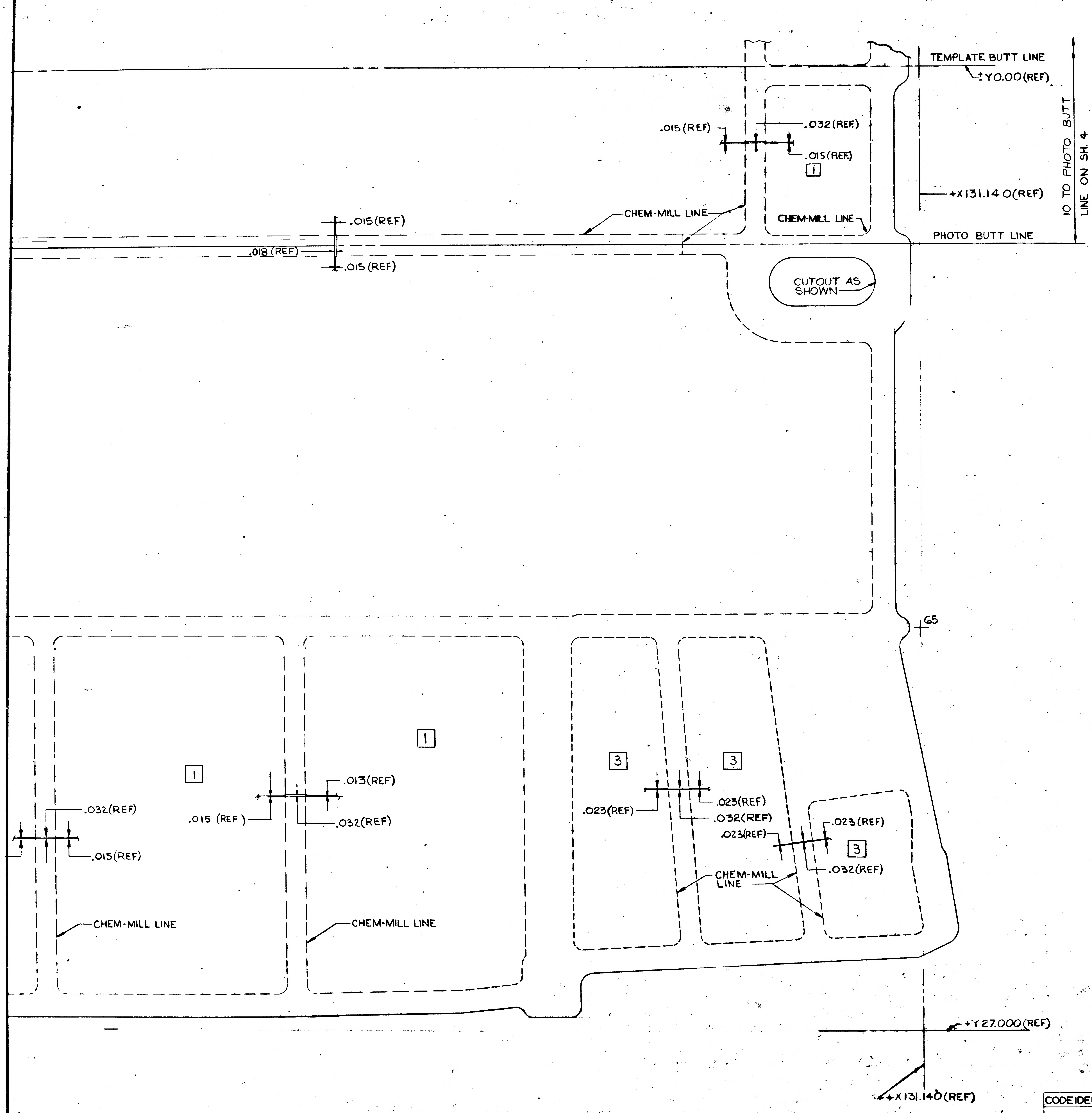
CODE IDENT NO.26512
LDW280-18426 SH 3

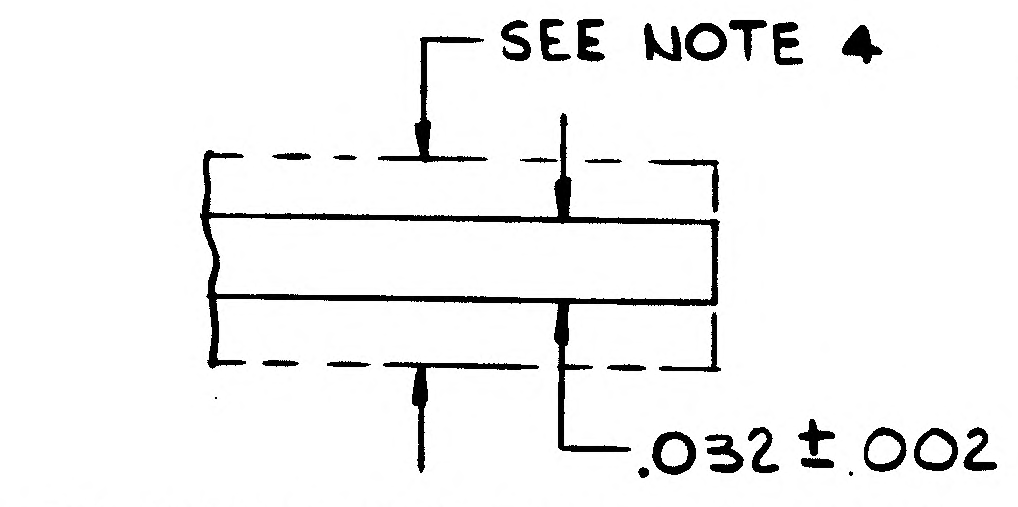
LEM
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP. BETHPA

SIZE	CODE IDENT NO.	
J	26512	LDW280-

SCALE FULL

FOR PHOTO


TEMPLATE BUTT LINE
Y0.00 (REF)
10 TO PHOTO BUTT LINE ON SH. 4
+X131.140 (REF)
PHOTO BUTT LINE
.015 (REF)
.032 (REF)
.015 (REF)
1
CHEM-MILL LINE
CHEM-MILL LINE
.015 (REF)
.018 (REF)
.015 (REF)
CUTOUT AS SHOWN
65
1
1
.013 (REF)
.032 (REF)
.015 (REF)
.015 (REF)
.032 (REF)
3
3
3
.023 (REF)
.023 (REF)
.032 (REF)
.023 (REF)
.023 (REF)
.032 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
+Y 27.000 (REF)
+X131.140 (REF)
80
30


SEE NOTE 4
.032 ± .002

FOR ENGRG REF ONLY - NO SCALE

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
3. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18426-13 IS SIMILAR TO LDW280-17126-23.
4. FABRICATE WEB PER LPC280-43

LDW280-18426-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) *
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ± .002	.017 (REF)
2	.018 ± .002	.014 (REF)
3	$.023^{+.003}_{-.002}$	.009 (REF)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 96) = 24.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

103/403

NAS 9-1100

LEM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-18426	A
SCALE FULL		SHEET 3.00	

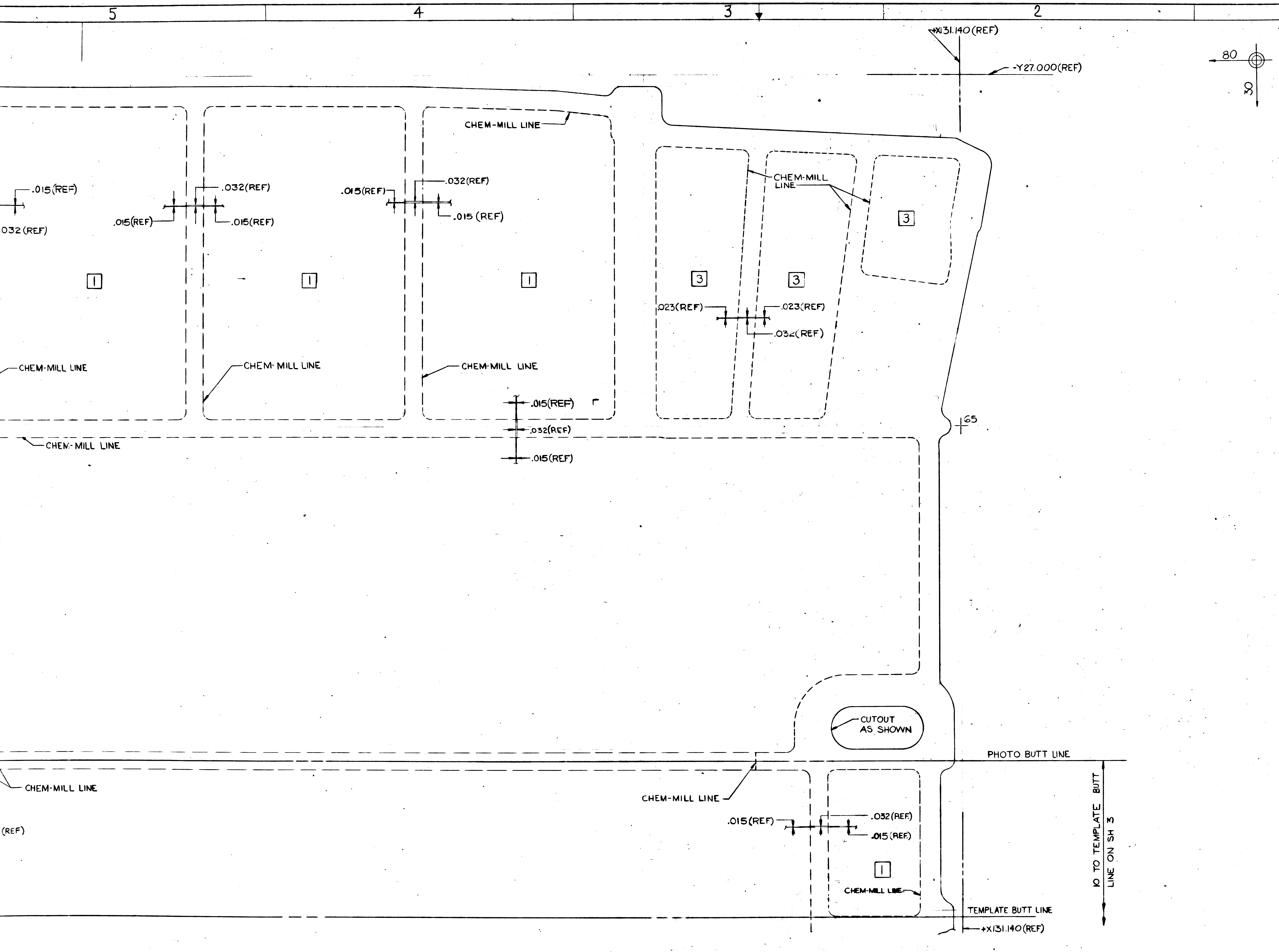
FOR PHOTO REPRODUCTION K2

CODE IDENT NO. 26512
LDW280-18426
SH 3

LDW280-18426 A

LDW280-18426 A

ENG 73-7 6-64


5
4
3
2
1
+X131.140(REF)
-Y27.000(REF)
80
30
CHEM-MILL LINE
.015(REF)
.032(REF)
.015(REF)
.032(REF)
.015(REF)
.015(REF)
.015(REF)
.032(REF)
.015 (REF)
CHEM-MILL LINE
1
1
1
3
3
3
.023(REF)
.023(REF)
.032(REF)
CHEM-MILL LINE
CHEM- MILL LINE
CHEM-MILL LINE
.015(REF)
.032(REF)
.015(REF)
65
CHEM-MILL LINE
CUTOUT AS SHOWN
PHOTO BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
(REF)
.015(REF)
.032(REF)
.015(REF)
1
CHEM-MILL LINE
TEMPLATE BUTT LINE
+X131.140(REF)
10 TO TEMPLATE BUTT LINE ON SH 3

MANUFACTURING O
UNLESS OTHERWISE
NOTES CHECKED ✓ APPL

PART NUM
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESS

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .01
.063R TO .250R ± .01
OVER .250R ± .03

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX

DO NOT CADMIUM PLATE &
HOLES OR SURFACES MARK
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .00
PERMISSIBLE DUE TO CHAN
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WIT
FULL
READING.

HOLES MUST BE KEPT FREE
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003
TO .0005 MAX. MIN THICKN
BE .0002 ON THREADED ARE
NO ALLOWANCES FOR PLATI
HOLES

125 SURFACE ROUGHNE
INCLUDING REAMED
PER MIL-STD-10

200 FOR ALL DRILLED

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURF
TO BE MACHINED

UNLESS OTHERWISE SPECIFI
TOLERANCE ON FLANGES IS

LENGTHS OF AN, NAS & MS
RIVETS SHORTER THAN 1 IN
NOT SPECIFIED

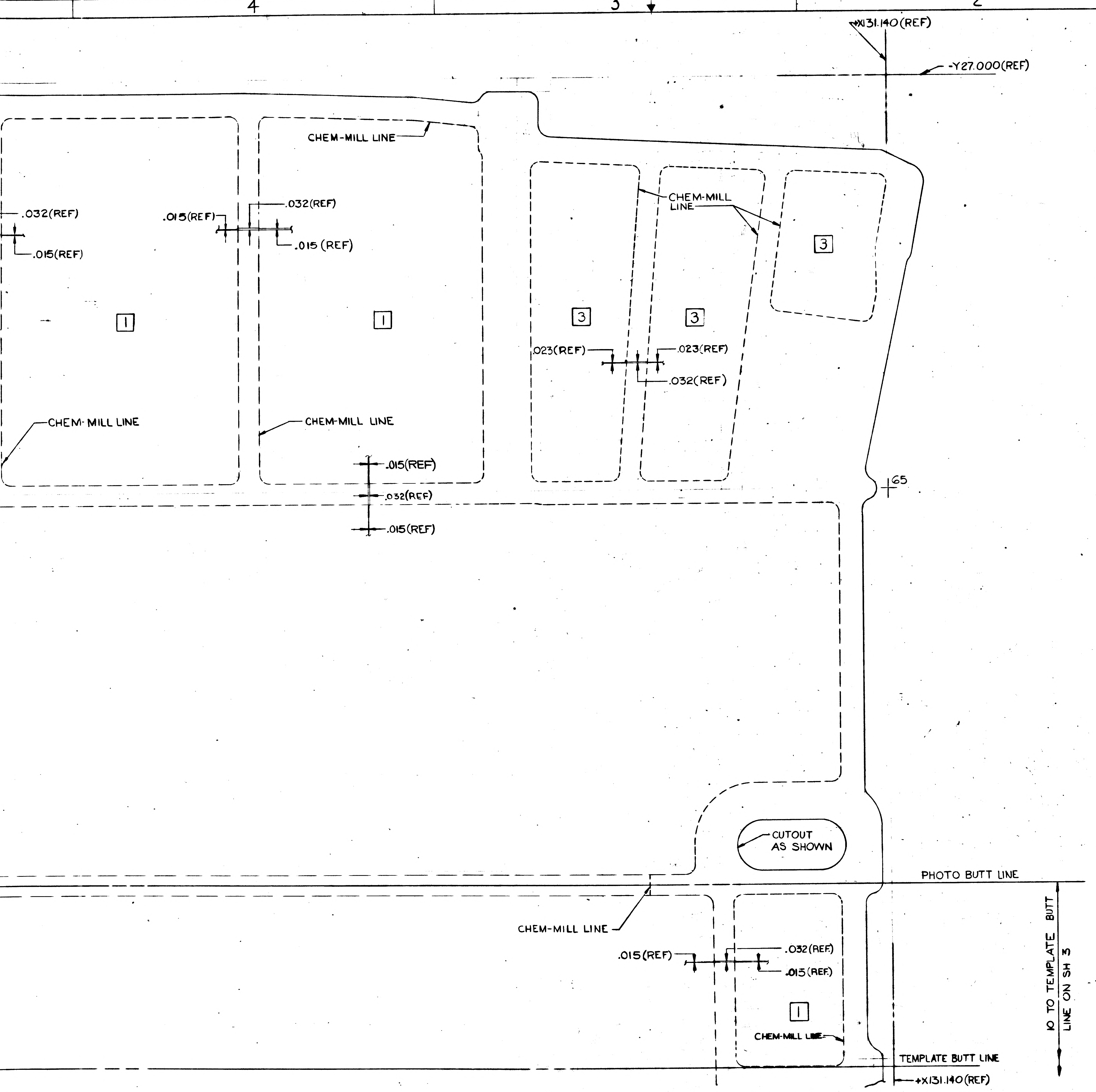
TOLERANCE ON LOFTED
DELINEATIONS IS

T NO.26512
-18426 SH1 4

02/03F NAS 9-1100

CODE IDENT NO 26512
LDW280-18426 SH 4

LEM
MODEL
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L
SIZE J CODE IDENT NO. 26512 LDW280-184
SCALE FULL SH
1 FOR PHOTO REPR


+X131.140(REF)
-Y27.000(REF)
CHEM-MILL LINE
.032(REF)
.015(REF)
.015(REF)
.032(REF)
.015 (REF)
CHEM-MILL LINE
3
3
3
1
1
.023(REF)
.023(REF)
.032(REF)
CHEM- MILL LINE
CHEM-MILL LINE
.015(REF)
.032(REF)
.015(REF)
65
CUTOUT AS SHOWN
PHOTO BUTT LINE
CHEM-MILL LINE
.015(REF)
.032(REF)
.015(REF)
1
CHEM-MILL LINE
10 TO TEMPLATE BUTT LINE ON SH 3
TEMPLATE BUTT LINE
+X131.140(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34x 24
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 96) = 24.0 SQ. FT.
¼ SIZE SHEET AREA (¼ OF FULL) = 6.0 SQ. FT.
PRINT TRIM LINE

LDW280-18426 A

LDW280-18426 A

03/03 NAS 9-1100

CODE IDENT NO.26512
LDW280-18426
SH 4

LEM MODEL OR END ITEM			
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-18426	A
SCALE FULL		SHEET 4.00	

B43280

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18426
EO NO. A1
CONTROL INFO NO. LDW280A 8784

CREATE -11 WEB SAME AS LDW280-17126-23 EXCEPT AS SHOWN.
EFF FOR -11 LEM-4(34) THRU LEM-15(45) & LTA-3D(13)
N/A FOR -11 LDW280-54526 LEM-4(15) THRU LEM-15(45) & LDW280-23526
LTD-3D(13) (1) REQD PER MOD — ALL NOTES APPLY EXCEPT NOTE #2

(SAME) (ADD)

LDW280-17126-23	LDW280-18426-11		
SYMBOL	SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1 2 3	1	.015 ±.002	.017 (REF)
4	2	.018 ±.002	.014 (REF)
5	3	$.023^{+.003}_{-.002}$	.009 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18426-11 IS SIMILAR TO LDW280-17126-23

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 1997 5

REASON FOR EO: TO IMPROVE MFG. QUALITY OF CHEM-MILL PANEL

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

Ⓡ GAEC EO RELEASE C
JK 8/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LEM-4(34) THRU LM15(45) LTA-3D (13)	

DRAWING CHANGE REQD: REVISE DWG * RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
					NM		
DATE	8/17/67				8-17-67		8/17/67 8-18-67
	VDI						

PRIORITY C
DRAWING TITLE: WEB-DESCENT END BHD. FWD-+Z
DRAWING NO. LDW280-18426
EO NO. A1

8/18
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

01

NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*, USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. No.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A3	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				—	NM			
DATE	8/21/67 V.D.I.			—	8/23/67		8/24/67	8-28-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LE0280

EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWG'S ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASS'Y, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB - D.S. - END BLKD - R.H. END BHD
✓	" -18425	-11	-13	A3	" - L.H. END BHD
✓	" -18426	-11	-13	A3	" - FWD END BHD
	" -18427	-11	-13	A3	" - AFT END BHD
	" -18429	-15	-17	A5	" D.S. - BEAM PANEL - FWD ENG. COMPT.
	" -18432	-13	-15	A4	" - AFT ENG COMPT.
	" -18435	-11	-13	A3	" - R.H ENG COMPT
	" -18438	-15	-17	A6	" - L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 OK 5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED - *, REMOVED - **.

Ⓡ GAEC EO RELEASE: VC 8/30/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAP				NM			
DATE	8/21/67				8/23/67		8/24/67	8/30/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 698

8/25
ISSUED BY PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280	EO NO. 706
CONTROL INFO NO. LDW2[illegible]A 9086	

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO $.XXX^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425		B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1997		5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE $.XXX^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE: C JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	LTA-3D(13)
		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT	REQD

APPROVED BY									
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67	
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18426		EO NO. B2
CONTROL INFO NO. LDW280A9613		

ADD -15 WEB SAME AS LDW280-17126-23 EXCEPT AS SHOWN
EFF FOR -15 { LTA-3(13) N/A LDW280-23526 1 REQD EA/MOD I & T = (5)
LM-6(36) THRU LM-15(45) N/A LDW280-54526 1 REQD EA/MOD
FOR -13 EFF REMOVE LTA-3(13) & LM-6(36) THRU LM-15(45) REQMTS
FOR-15 PROCESS & FINISH "SEE NOTE *"
NOTE * FABRICATE PER LPC280-43

(WAS) (15)

LDW280-17126-23	LDW280-18426-15		
SYMBOL	SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPT OF CUT
1	1	$.012^{+.003}_{-.002}$	.020(REF)
2			
3	2	$.015^{+.003}_{-.002}$	.017(REF)
4	3	.018 ±.003	.014 (REF)
5	4	$.023^{+.004}_{-.003}$	.009(REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 2220 3

REASON FOR EO: CHANGE MIN GAUGE

DESCRIPTION OF EO: ADDED -15 & NOTE *
FOR -13 EFF REMOVED LTA-3(13) & LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: JK 10/12/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	
LM		LM-15(45)	
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	10/11/67			10/11/67	10/11/67		10/11/67	10-12-67	
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB DESCENT STAGE - END BULKHEAD - FWD + Z	LDW280-18426	B2

10/20
ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1359
CONTROL INFO NO. LDW280B 7433

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18417 ✓	A2	SEE DWG
-18418 ✓	A5	↑
-18419 ✓	A3	
-18420 ✓	B2	
-18424 ✓	B4	
-18425 ✓	B4	
-18426 ✓	B4	
-18427	B4	
-18428	B4	↓
LDW280-18429	C1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	LCD 3587 PKG 54 PG. 8-9 CCA 1821	(5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM - *

GAEC EO RELEASE: JK 4/11/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO

DISPOSITION OF PARTS: REWORK · SCRAP ✓

APPROVED BY								
DATE	4/2/69			4-2-69	4/8/69		4/9/69	4/10/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1359

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1574
CONTROL INFO NO. LDW280B8227		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
[illegible]	SEE DWG	
[illegible]		
[illegible]		
✓ LDW280M18039.		A3
✓ LDW280-18426.		B5
LDW280M17111.	SEE DWG	E1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 86 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (123) REQMTS	VNJB 8-16-69 K 8/19/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
		NOT REQ'D		DATE	7-30-69			7/29/69	8/2/69		8/2/69 8/8/69
✓ REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1574

9-26-69 ISSUED BY G. HAWSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18427 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23527	LTA-3D ⑬	1
	LDW280-54527	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54527	LM-4 (34)	1

PART NO. LDW280-18427-13 | GAEC SCH NO.

WORK PKG FUNCTION NO 111 ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00
REV	A	A	A	A	A
SHEET					
REV					
SHEET					
REV					

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL^c INFO A

PRIM NO. 207 | JK(001) | MF-1EA 9/27/7 | OK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓

LCD 1997

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	H.DEUTSCH 9/6/67
LAYOUT BY	J.ANDERSEN
CHECKED BY	J Karszman 9-19-67
~~GR. LEADER~~	
VEH. DES INT	9/23/67
STRUCTURE	NJH 9/26/67
STRUCTURE	FEB 9/25
WEIGHTS	

PROJ ENGR 9/23/67
REL GROUP 9-27-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - AFT END BULKHEAD

SIZE B | CODE IDENT NO. 26512 | LDW280-18427 | A Ⓐ

SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00 4.00				✓		EO A1 LCD 1997	EO A1 INITIAL DWG RELEASE. PARTS MADE PER EO.	LM-4(34) THRU LM-15(45) LTA-3D(13)	NOT	REQD	H. DEUTSCH 9-6-67		9-27-67
	2	1.10, 3.00				✓		LEO 280-696 LCD 1997	ADDED NOTE #(*), REMOVED NOTE #(X, Y, Z)						
	3	1.00, 1.10 2.00, 3.00				✓		LEO 280-698 LCD 1997	ADDED -13, REMOVED -11			-11			
	4	1.10, 3.00							REF EO A1 & A2 (LEO 280-696) ALL NOTES ARE NOT APPLICABLE. Ⓐ ADDED NOTES #1 THRU 4.		NOT	REQ'D	JK		

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS
	A	—	9/23/67	9/25/67		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18427	A Ⓐ

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18427-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 58 X 69	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18427	A

Ⓐ

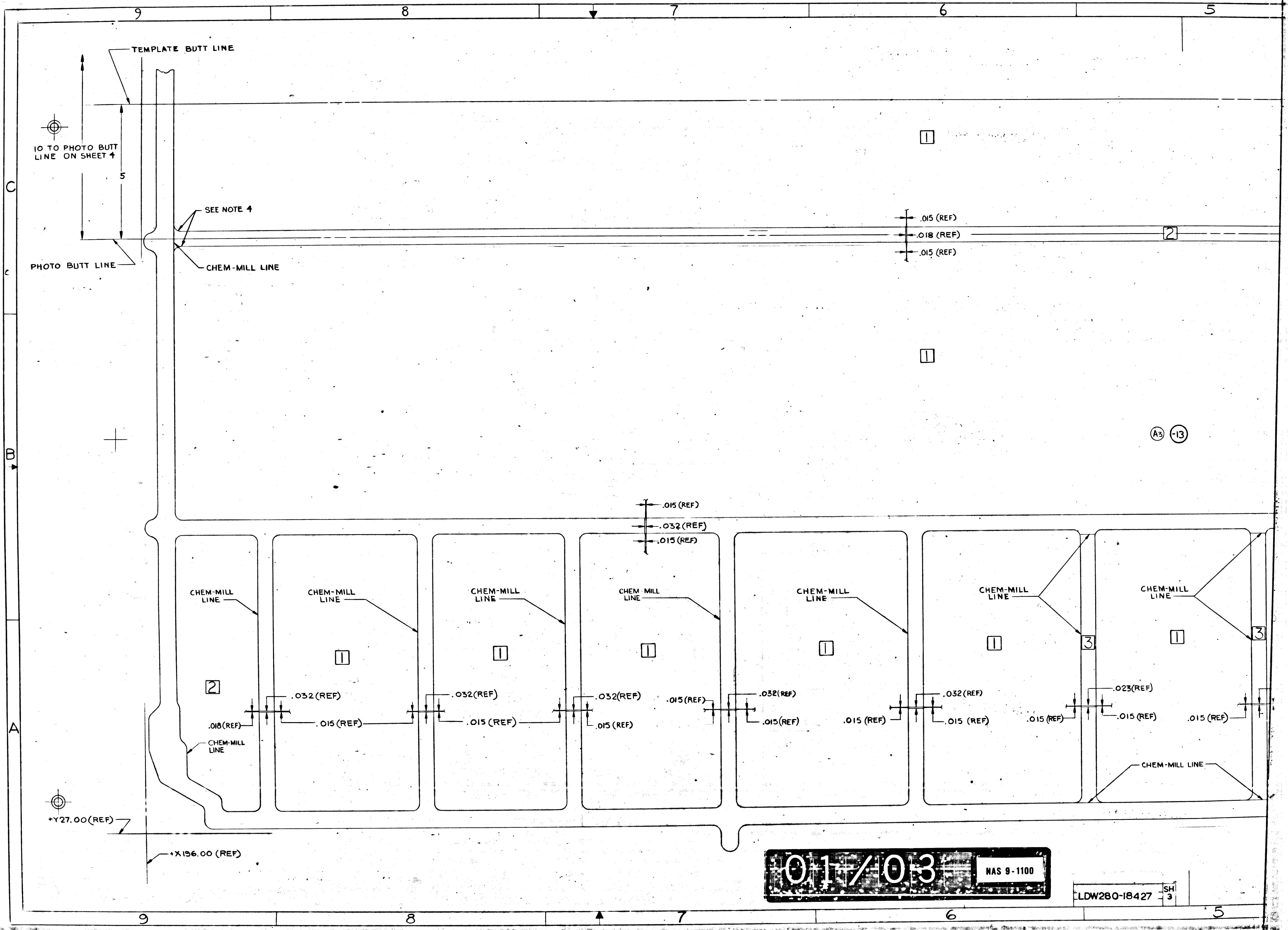
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

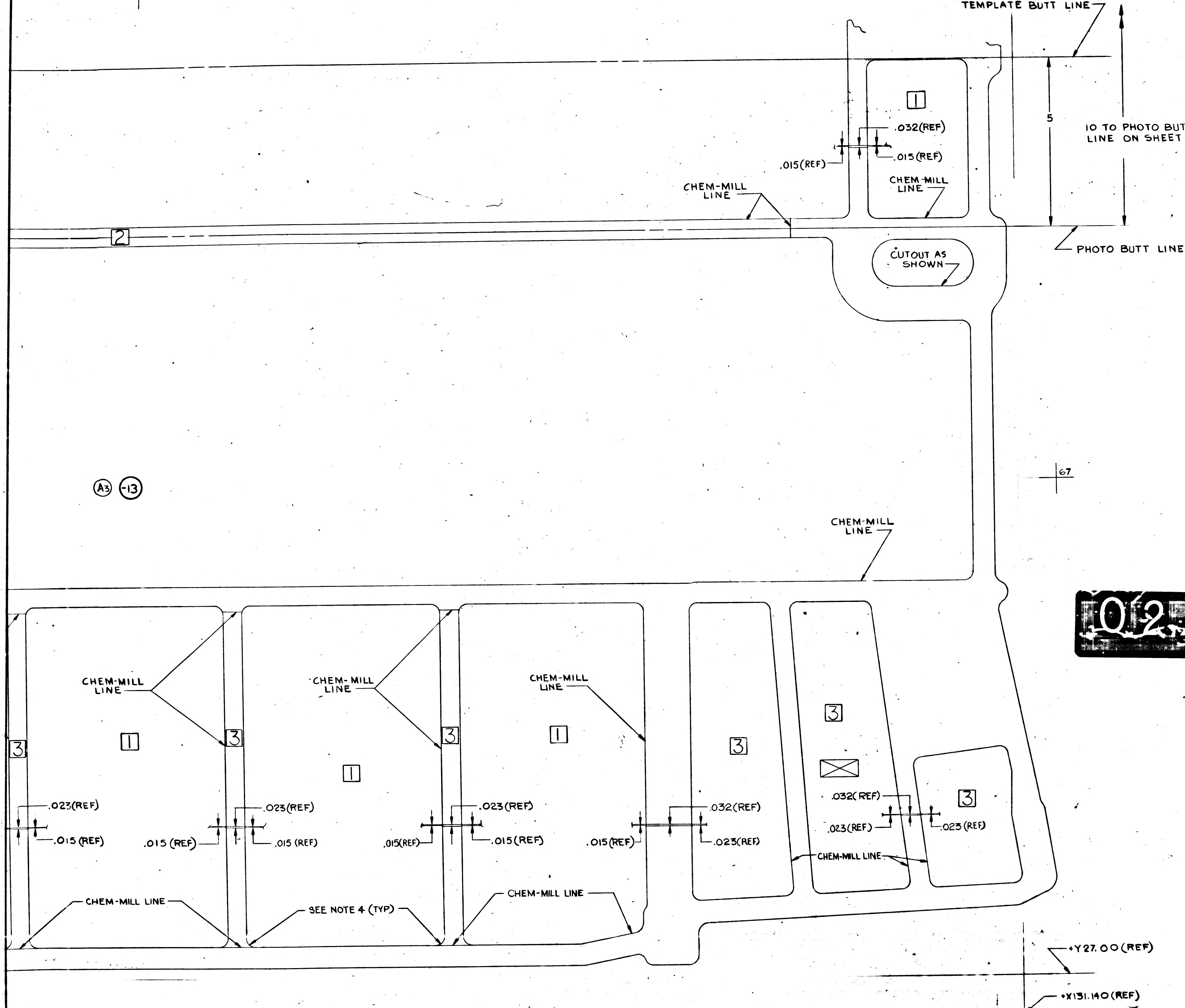
NAS 9-1100


9
8
7
6
5
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
C
B
A
SEE NOTE 4
PHOTO BUTT LINE
CHEM-MILL LINE
.015 (REF)
.018 (REF)
.015 (REF)
2
1
1
A3
-13
.015 (REF)
.032 (REF)
.015 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
2
1
1
1
1
1
1
3
3
.032 (REF)
.018 (REF)
.015 (REF)
.032 (REF)
.015 (REF)
.032 (REF)
.015 (REF)
.015 (REF)
.032 (REF)
.015 (REF)
.015 (REF)
.032 (REF)
.015 (REF)
.015 (REF)
.023 (REF)
.015 (REF)
.015 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
+Y27.00 (REF)
+X196.00 (REF)

01/03

NAS 9-1100

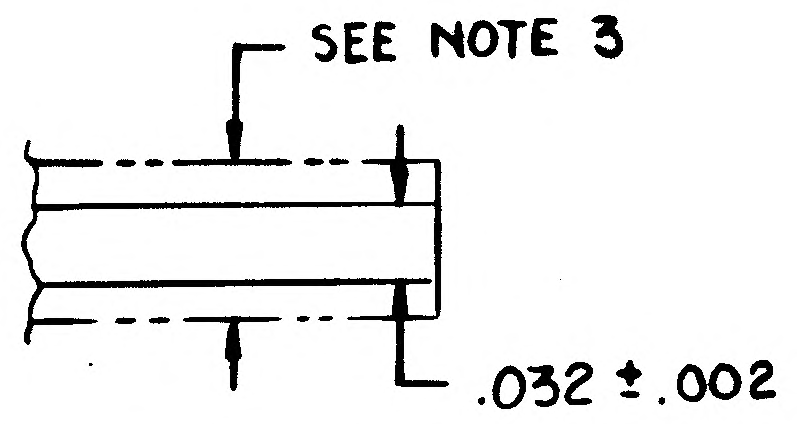
LDW280-18427 SH 3


TEMPLATE BUTT LINE
1
.032(REF)
.015(REF)
.015(REF)
CHEM-MILL LINE
5
10 TO PHOTO BUTT LINE ON SHEET 4
CHEM-MILL LINE
2
PHOTO BUTT LINE
CUTOUT AS SHOWN
A3
-13
67
CHEM-MILL LINE
80
25
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
3
1
1
1
3
3
3
3
3
.023(REF)
.015 (REF)
.023(REF)
.015 (REF)
.015 (REF)
.023(REF)
.015(REF)
.015(REF)
.015(REF)
.032(REF)
.023(REF)
.032(REF)
.023(REF)
.023 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4 (TYP)
CHEM-MILL LINE
+Y27.00 (REF)
+X131.140 (REF)

02/03 NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18427-13 IS SIMILAR TO LDW280-17127-19.
3. FABRICATE LDW280-18427-13 PER LPC 280-43.
4. TOLERANCE ± .125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.


SEE NOTE 3
.032 ± .002

FOR ENG REF ONLY - NO SCALE

LDW280-18427-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ± .002	.017 (REF)
2	.018 ± .002 *	.014 (REF)
3	$.023^{+.003}_{-.002}$	.009 (REF)

MANUFACTURING
UNLESS OTHERWIS
NOTES CHECKED ✓ AP

RUBBER STAMP PART NU
AND ALL OTHER MARKING
IN REGION MARKED ☒
~~USE BOTH SIDES IF NECES~~

FILLET AND INSIDE CORNE
RADII TOLERANCES
.016R TO .062R ±
.063R TO .250R ±
OVER .250R ±

DEPTH SHOWN FOR TAPP
HOLES IS FULL THDS. 2-3
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGT
SHOWN INCLUDES
2 IMPERFECT THREADS M

DO NOT CADMIUM PLATE
HOLES OR SURFACES MA
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ±
PERMISSIBLE DUE TO CH
OF CUTTERS AT INSIDE
INTERSECTING SURFACES

DIAMETERS MARKED
MUST BE CONCENTRIC W
FU
READING.

HOLES MUST BE KEPT F
CHROME PLATING SOLUT

ALL DIMENSIONS SHOWN
AFTER CADMIUM PLATIN
THICKNESS OF PLATE .0
TO .0005 MAX. MIN THI
BE .0002 ON THREADED
NO ALLOWANCES FOR P
HOLES

125 SURFACE ROU
INCLUDING RE
PER MIL-STD-1

200 FOR ALL DRIL

REMOVE ALL BURRS.
BREAK ALL EDGES .015

INSPECTION INFORMAT
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTAN
MARKED IS

SYMBOL X DENOTES
TO BE MACHINED

UNLESS OTHERWISE S
TOLERANCE ON FLANG

LENGTHS OF AN, NAS
RIVETS SHORTER THA
NOT SPECIFIED

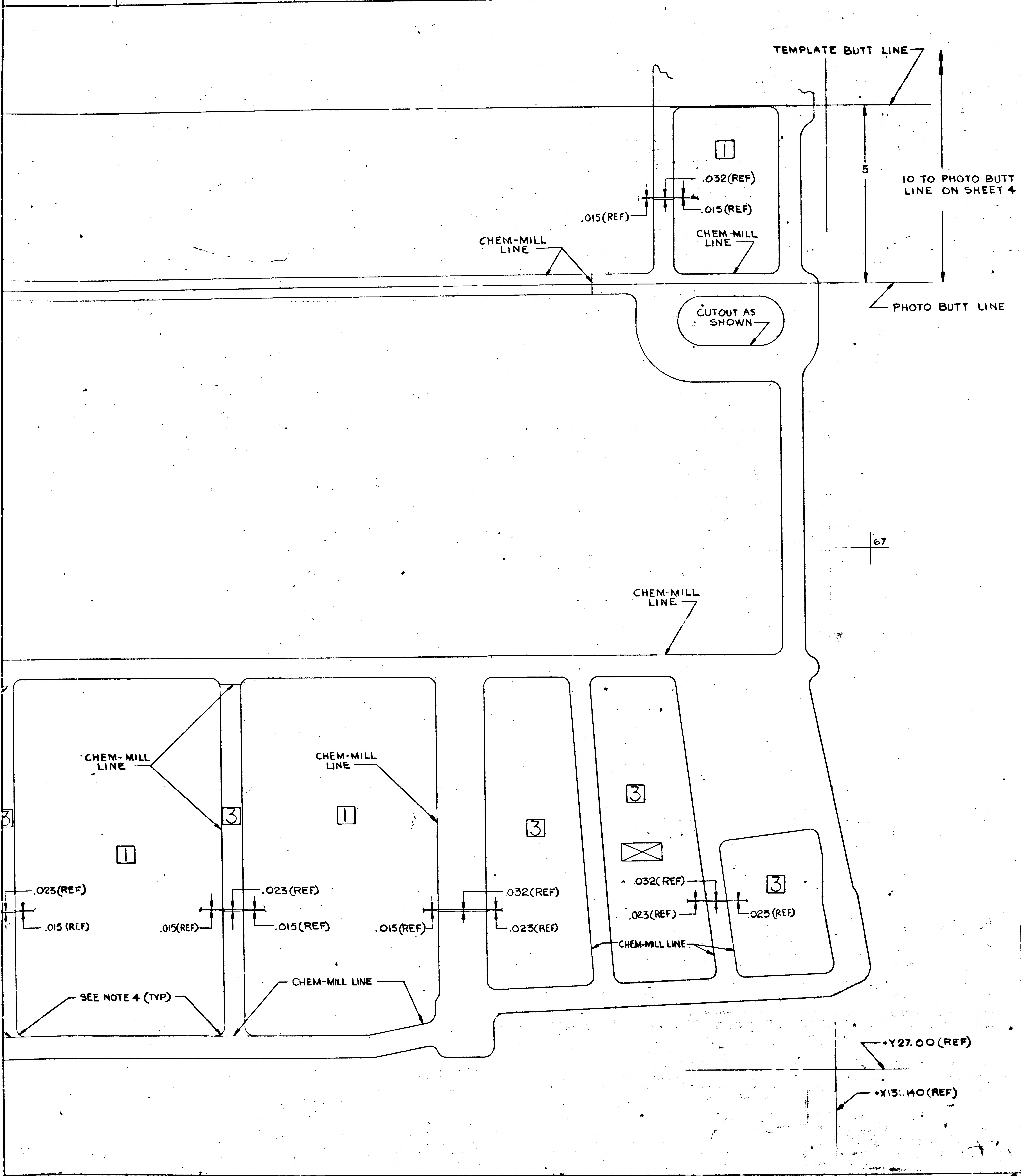
TOLERANCE ON LOFT
DELINEATIONS IS

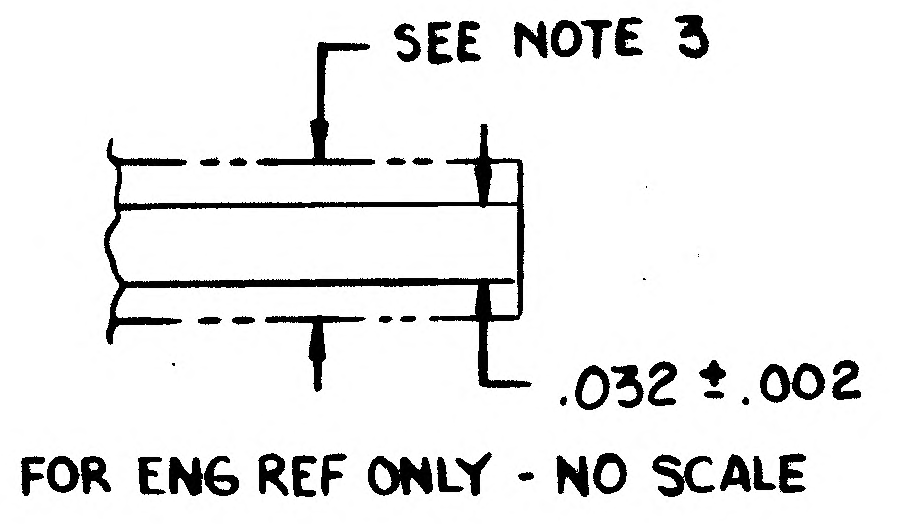
LM
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP. B

SIZE	CODE IDENT NO.	
J	26512	LDW28

SCALE FULL

FOR PHOTO


TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 4
.032(REF)
.015(REF)
.015(REF)
CHEM-MILL LINE
CHEM-MILL LINE
PHOTO BUTT LINE
CUTOUT AS SHOWN
67
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
.023(REF)
.015 (REF)
.015(REF)
.023(REF)
.015(REF)
.015(REF)
.032(REF)
.023(REF)
.032(REF)
.023(REF)
.023(REF)
CHEM-MILL LINE
SEE NOTE 4 (TYP)
CHEM-MILL LINE
+Y27.00 (REF)
+X131.140 (REF)
1
3
3
1
1
3
3
3
3
80
25


SEE NOTE 3
.032 ± .002

FOR ENG REF ONLY - NO SCALE

LDW280-18427-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ± .002	.017 (REF)
2	.018 ± .002 *	.014 (REF)
3	$.023^{+.003}_{-.002}$	.009 (REF)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18427-13 IS SIMILAR TO LDW280-17127-19.
3. FABRICATE LDW280-18427-13 PER LPC 280-43.
4. TOLERANCE ± .125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x104
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 107) = 26.5 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ. FT.
PRINT TRIM LINE

LDW280-18427 A

LDW280-18427 A

03/03

NAS 9-1100

LM			
MODEL OR END ITEM			
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-18427	A
SCALE FULL		SHEET 3.00	

LDW280-18427 SH 3

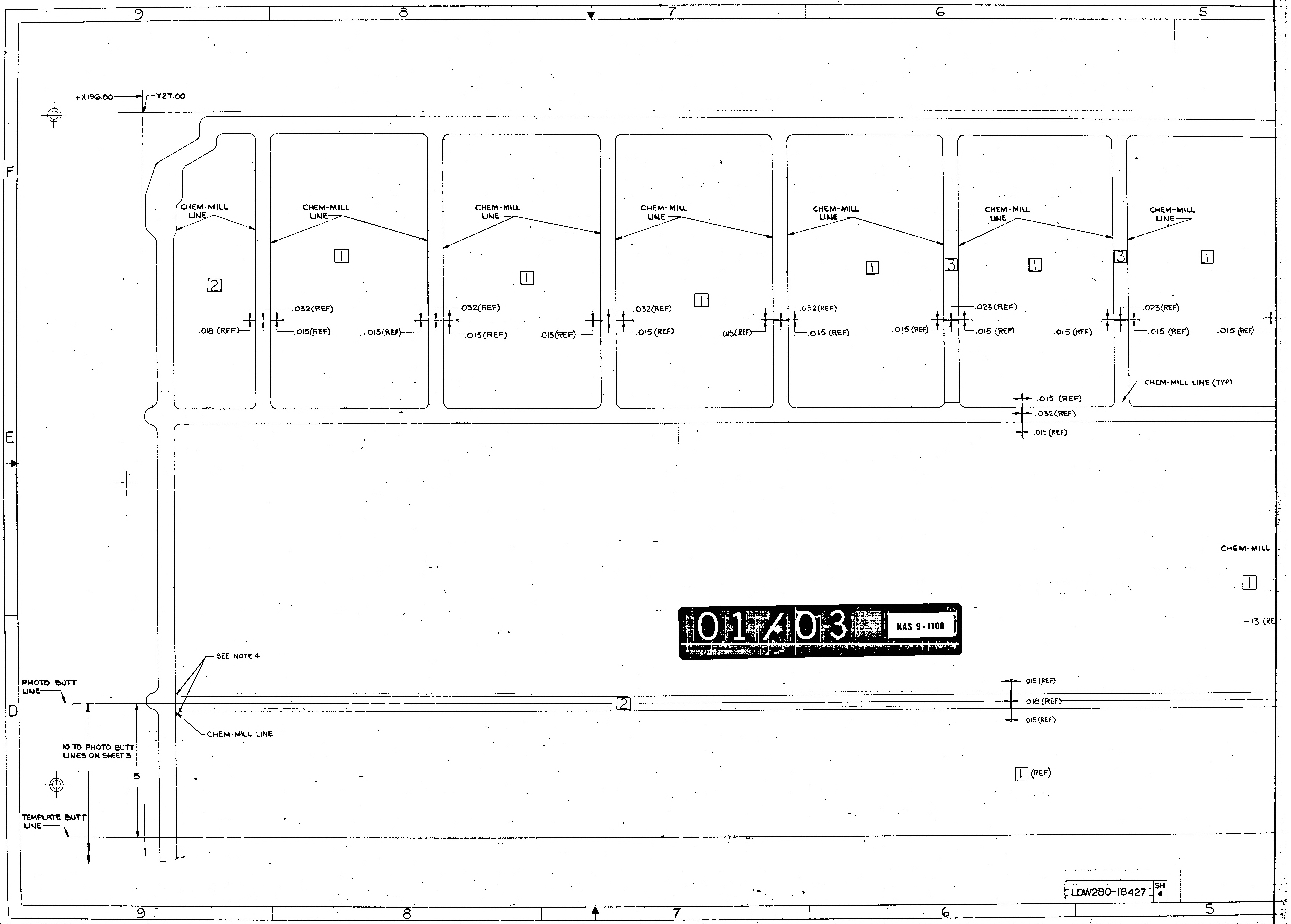
FOR PHOTO REPRODUCTION

(A)

K2

ENG 73-7 6-64

3 FR


9
8
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-Y27.00
CHEM-MILL LINE
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CHEM-MILL LINE (TYP)
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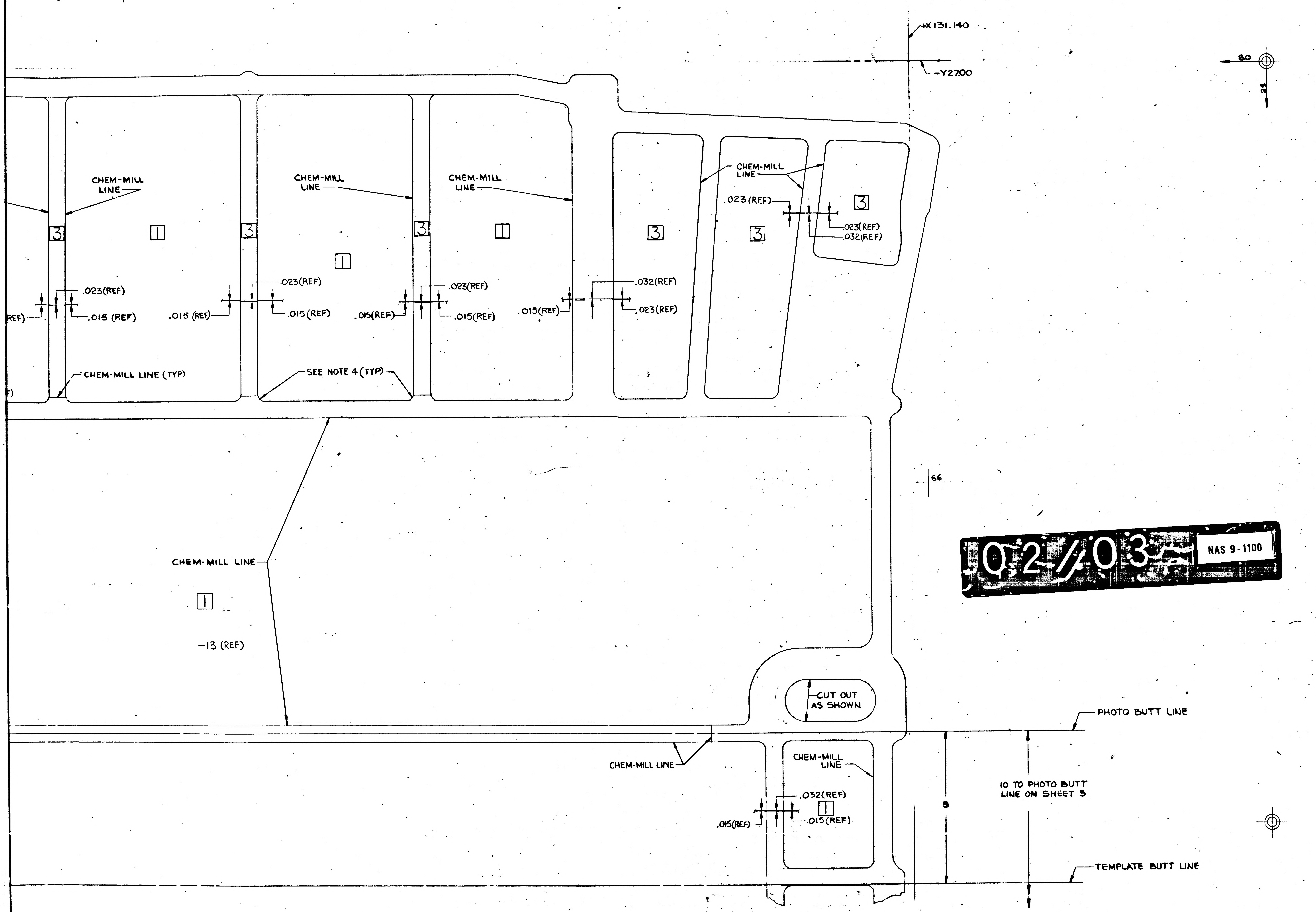
1
-13 (RE
SEE NOTE 4
PHOTO BUTT LINE
2
.015 (REF)
.018 (REF)
.015 (REF)
CHEM-MILL LINE
10 TO PHOTO BUTT LINES ON SHEET 3
5
1 (REF)
TEMPLATE BUTT LINE
LDW280-18427
SH 4

01/03 NAS 9-1100


+X131.140
-Y27.00
80
25
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
3
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.023(REF)
.032(REF)
.023(REF)
.032(REF)
.023(REF)
.015 (REF)
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.015(REF)
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.015(REF)
.015(REF)
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.023(REF)
.032(REF)
.023(REF)
CHEM-MILL LINE (TYP)
SEE NOTE 4 (TYP)
66
CHEM-MILL LINE
1
-13 (REF)
CUT OUT AS SHOWN
PHOTO BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
.032(REF)
1
.015(REF)
.015(REF)
5
10 TO PHOTO BUTT LINE ON SHEET 5
TEMPLATE BUTT LINE

02/03 NAS 9-1100

MANUFACTURING OPER
UNLESS OTHERWISE SP
NOTES CHECKED ✓ APPLY T

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP.
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PA
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL IND
READING.

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO B
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 M
TO .0005 MAX. MIN THICKNESS
BE .0002 ON THREADED AREAS
NO ALLOWANCES FOR PLATING
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED
PER MIL-STD-10

200 FOR ALL DRILLED H

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFA
TO BE MACHINED

UNLESS OTHERWISE SPECIFIE
TOLERANCE ON FLANGES IS

LENGTHS OF AN, NAS & MS
RIVETS SHORTER THAN 1 IN
NOT SPECIFIED

TOLERANCE ON LOFTED
DELINEATIONS IS

LM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENG'G CORP. BETHPAGE

SIZE	CODE IDENT NO.	
J	26512	LDW280-1

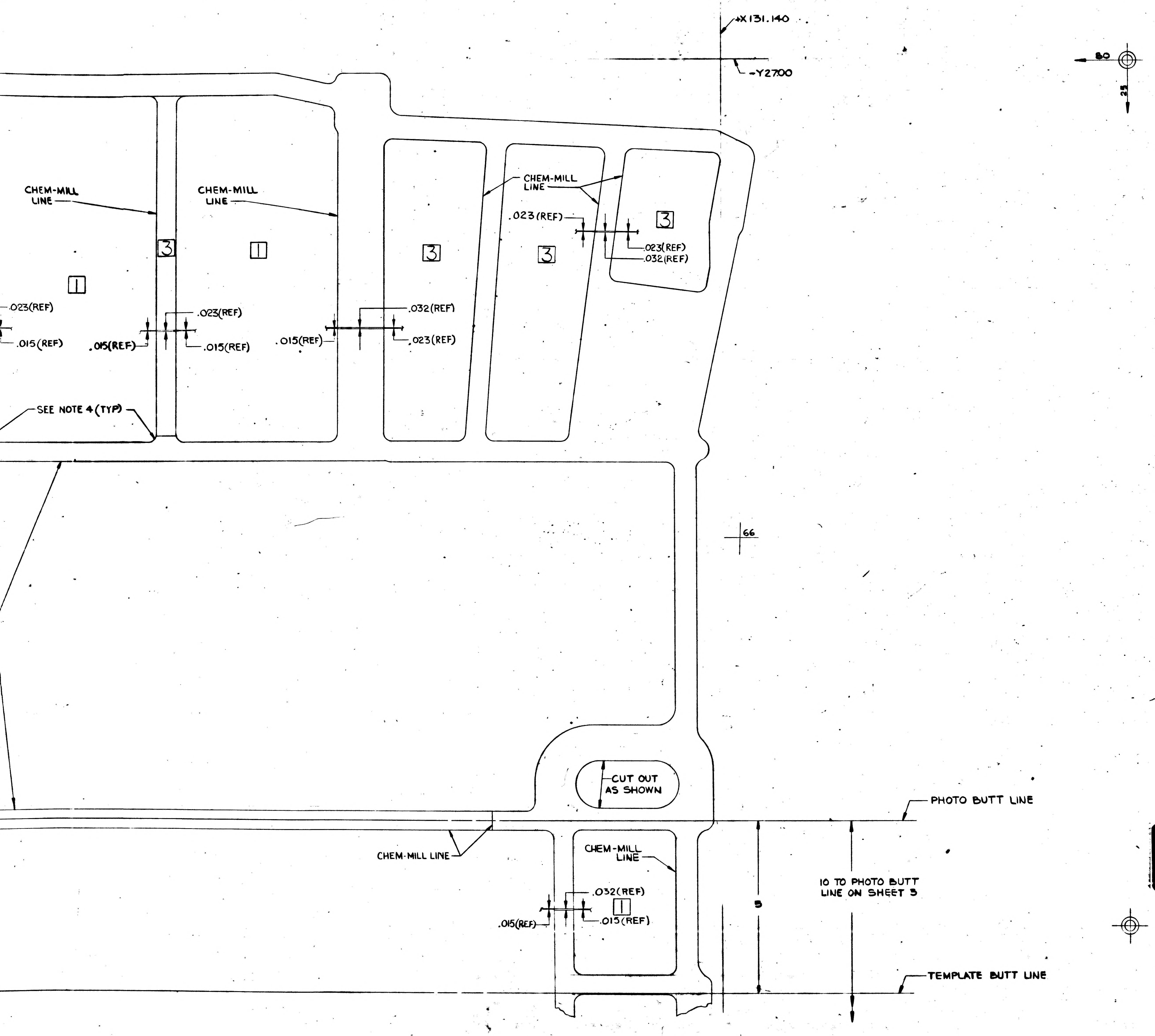
SCALE FULL

LDW280-18427 SH 4

LDW280-18427 SH 4

FOR PHOTO

REP


+X131.140
-Y2700
80
25
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
3
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3
.023(REF)
.023(REF)
.032(REF)
.023(REF)
.032(REF)
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.023(REF)
.015(REF)
.015(REF)
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.015(REF)
SEE NOTE 4 (TYP)
66
CUT OUT AS SHOWN
PHOTO BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
.032(REF)
.015(REF)
.015(REF)
1
5
10 TO PHOTO BUTT LINE ON SHEET 5
TEMPLATE BUTT LINE

03/03 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 107) = 26.5 SQ. FT.
PRINT TRIM LINE

LDW280-18427 A

LDW280-18427 A

LDW280-18427 SH 4

LM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-18427	A

SCALE FULL
SHEET 4.00
Ⓐ
K2

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3 FR

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18427
EO NO. A1
CONTROL INFO NO. LDW280 A 8785

CREATE -11 WEB SAME AS LDW280-17127-19 EXCEPT AS SHOWN.
EFF FOR -11 LEM-4(34) THRU LEM-15(45) & LTA-3D(13)
N/A FOR -11 LDW280-54527 LEM-4(15) THRU LEM-15(45) & LDW280-23527
LTA-3D(13) (1)REQD PER MOD ~ ALL NOTES APPLY EXCEPT NOTE #2

(SAME)	(ADD)		
LDW280-17127-19	LDW280-18427-11		
SYMBOL	SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	1	.015 ±.002	.017 (REF)
2			
3			
4	2	.018 ±.002	.014 (REF)
5	3	$.023 {}^{+.003}_{-.002}$	.009 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18427-11 IS SIMILIAR TO LDW280-17127-19

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1997

REASON FOR EO
TO IMPROVE MFG QUALITY OF CHEM-MILL PANEL

DESCRIPTION OF EO
EO A1 INITIAL DWG RELEASE
PARTS MADE PER EO

(R) GAEC C EO RELEASE JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LEM-4(34) THRU LM15(45) LTA-3D (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
* REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP

APPROVED BY				—	NM		
DATE	8/17/67			✓	8-17-67		8/17/67 8-18-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY C
DRAWING TITLE WEB-DESCENT STAGE AFT END BHD.
DRAWING NO. LDW280-18427
EO NO. A1

8/18
ISSUED BY J. ANDERSEN / J. STEAKOGCH X1153   SECTION VDI   GROUP NO. 335 PL 25

01 NAS 9-1100

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NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 696	
CONTROL INFO NO. LDW280A 8879			

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCDL997					5
REASON FOR EO: FABRICATION PROCEDURE CHANGE				DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)							GAEC EO RELEASE: JK 8/28/7
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY			—	NM	
LM		LMA(34) THRU		✓ REVISE DWG / RECORD EO	NOT REQD REWORK / SCRAP	DATE	8/21/67			8/23/67	8/24/67 8-28-67
		LM15(45)	&LTA-3D(13)				V.D.I.	SUPPORT / RELIAB. GROUP	GROUP LEADER	STRESS GROUP / LIAISON ENGRG	PROJ ENGRG
				PRIORITY C	DRAWING TITLE: NOTED				DRAWING NO. LEO 280		EO NO. 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWG S ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASSY, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB - D.S. - END BLKD - R.H. END BHD
✓	" -18425	-11	-13	A3	" - L.H. END BHD
✓	" -18426	-11	-13	A3	" - FWD END BHD
✓	" -18427	-11	-13	A3	" - AFT END BHD
	" -18429	-15	-17	A5	" D.S. - BEAM PANEL - FWD ENG. COMPT.
	" -18432	-13	-15	A4	" - AFT ENG COMPT
	" -18435	-11	-13	A3	" - R.H ENG COMPT
	" -18438	-15	-17	A6	" - L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1997 ok	5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED - *, REMOVED - **.

GAEC EO RELEASE: VK 8/30/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAP				NM			
DATE	8/21/67				8/23/67		8/24/67	8/30/67

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO. LEO280
EO NO. 698

8/25
ISSUED BY PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425		B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

01
NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997

5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	DATE	
APPROVED BY	9/7/67	
9/7/67	VDI	
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	9/7/67	
STRESS GROUP	9-7-67	
LIAISON ENGRG		
PROJ ENGRG	9/7/67	
~~CONT~~	9-7-67	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-60

DWG. NO. LEO 280 | EO NO. 1359
CONTROL INFO NO. LDW280B 7433

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18417 ✓	A2	SEE DWG
-18418 ✓	A5	
-18419 ✓	A3	
-18420 ✓	B2	
-18424 ✓	B4	
-18425 ✓	B4	
-18426	B4	
-18427 ✓	B4	
-18428	B4	
LDW280 -18429	C1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 3587 PKG 54 PG. 8-9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM
— *

GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	
DATE				4-2-69	4/8/69		4/9/69	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1359

052869
ISSUED BY MEVORAH / THORJUSEN X86C46 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1712
CONTROL INFO NO. LDW280B7958

FOR DASH NO.'S* NOTED ON THE FOLLOWING DWGS., REMOVE LM-10(40) THRU LM-14(44) EFF.

	DRAWING NO.	DASH NO.*	TITLE	N/A	CHG.
✓	LDW280-17352	-11	SEE DWG.	LDW280-54527	A5
✓	-17454	-13		-54527	B6
✓	-18427	-15		-54527	B5
	LDW280-54527	-21, -23	SEE DWG.	LDW280-54510	G9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 62

REASON FOR EO: EPS BATTERIES RELOCATED FROM QI & IV TO -Z BULKHEAD

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: G.S. 10-7-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	9/29/69			9-29-69	9/30/69		10/1/69	10/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1712

CDR 10/29/69
ISSUED BY L. KRAVITZ/THORJUSEN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00 4.00				✓		EO A1 LCD-1997	EO A1, INITIAL DWG RELEASE PARTS MADE PER EO	LTA-3D(13) LM-4 (34) THRU LM-15 (45)	NOT	REQ'D	G. ENGEL 8-31-67		
	2	1.10 3.00					✓	LEO-280-696 LCD-1997	ADDED NOTE ✱. REMOVED NOTE *(X, Y, Z)	LTA-3D(13) LM-4-THRU LM-15	NOT	REQ'D			
	3	1.10 3.00				✓		LCD-1997	REF EO A1 & A2 ALL NOTES NOT APPLICABLE. ADDED NOTE 1, 2, 3 & 4		NOT	REQD			

CHG APPROVED

LTR	GROUP ~~LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A	—	JAS 9/23/67	WDB WJH 9/25/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18428	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18428-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.071x57 x68	SEE	NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2(GRUMMAN), LPC-19-3(VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18428	A

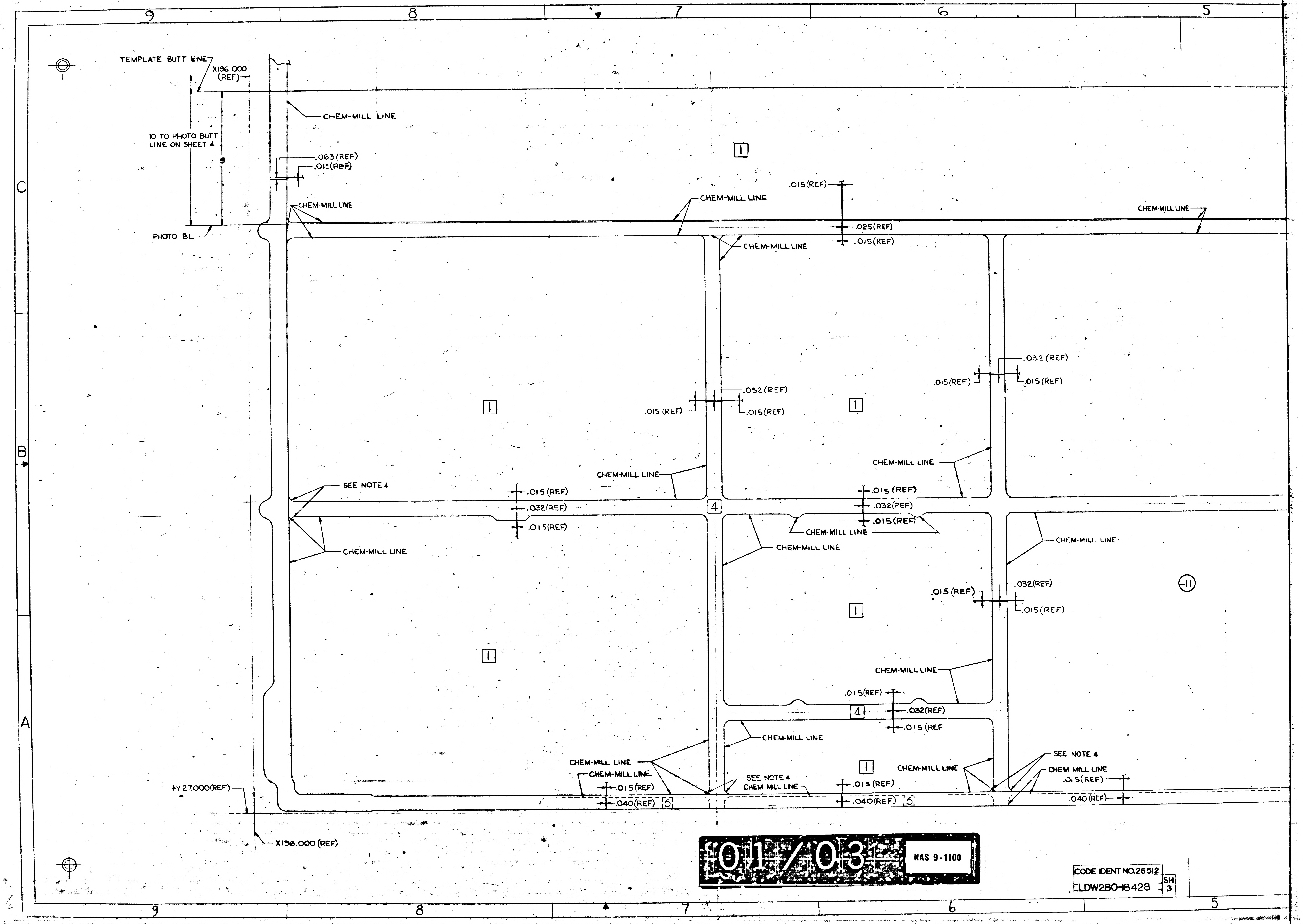
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
X196.000 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
9
CHEM-MILL LINE
.063 (REF)
.015 (REF)
PHOTO BL
CHEM-MILL LINE
CHEM-MILL LINE
.015 (REF)
.025 (REF)
.015 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
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1
.015 (REF)
.032 (REF)
.015 (REF)
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.015 (REF)
.032 (REF)
.015 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4
.015 (REF)
.032 (REF)
.015 (REF)
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.015 (REF)
.032 (REF)
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CHEM-MILL LINE
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CHEM-MILL LINE
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CHEM-MILL LINE
.015 (REF)
+Y 27.000 (REF)
.040 (REF)
5
SEE NOTE 4
CHEM MILL LINE
.015 (REF)
.040 (REF)
5
SEE NOTE 4
CHEM MILL LINE
.015 (REF)
.040 (REF)
X196.000 (REF)
9
8
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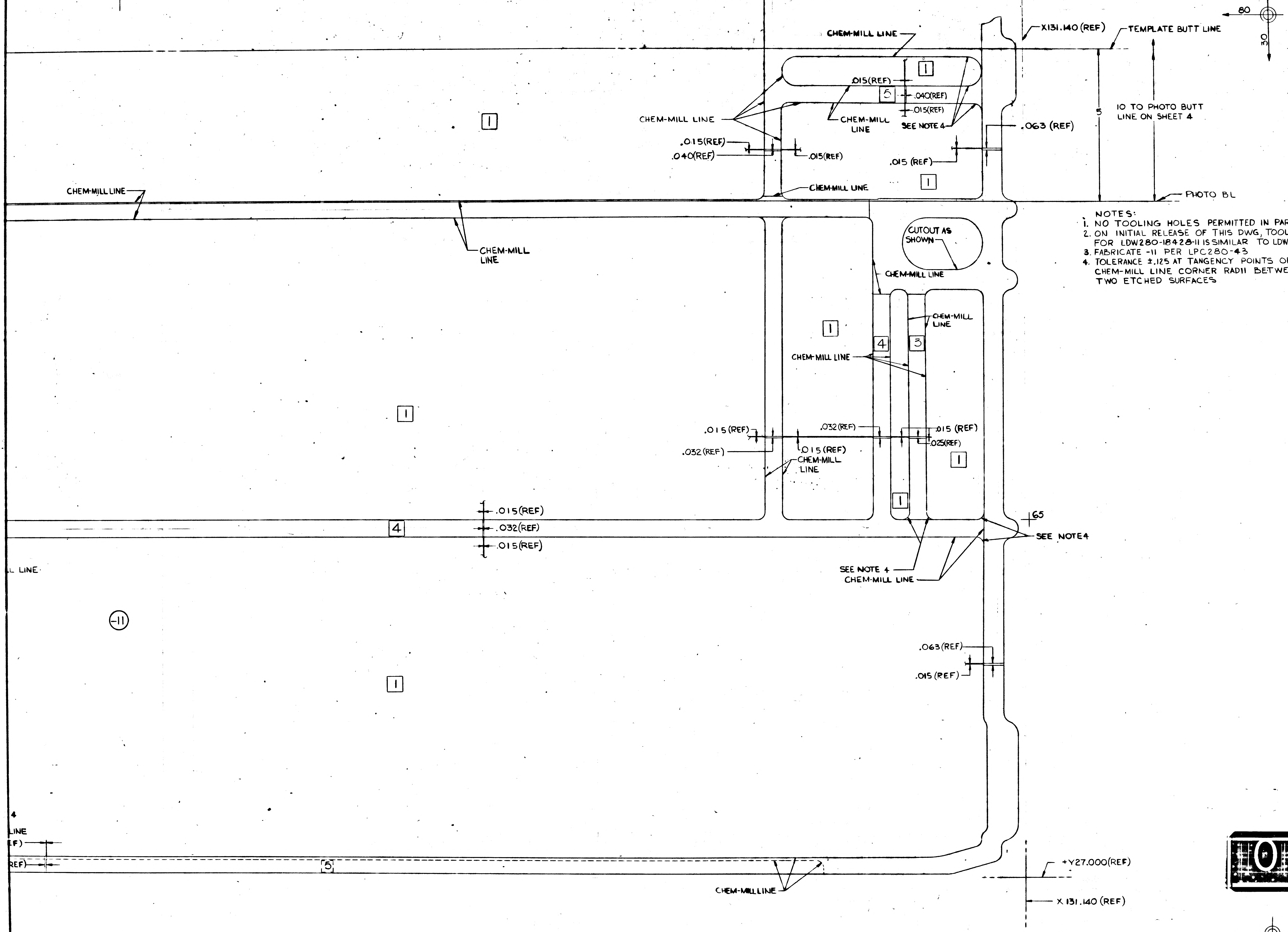
5

01/03

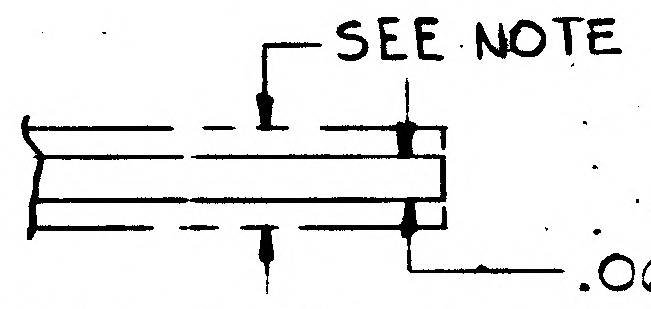
NAS 9-1100

CODE IDENT NO. 26512
LDW280-18428 SH 3



CHEM-MILL LINE
X131.140 (REF)
TEMPLATE BUTT LINE
80
30
.015(REF)
5
.040(REF)
.015(REF)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4
.063 (REF)
5
10 TO PHOTO BUTT LINE ON SHEET 4
.015(REF)
.040(REF)
.015(REF)
.015 (REF)
1
1
1
CHEM-MILL LINE
CHEM-MILL LINE
PHOTO BL
CHEM-MILL LINE
CUTOUT AS SHOWN
CHEM-MILL LINE
CHEM-MILL LINE
1
4
3
CHEM-MILL LINE
1
.015 (REF)
.032 (REF)
.032(REF)
.015 (REF)
.025(REF)
.015 (REF)
CHEM-MILL LINE
1
1
.015(REF)
4
.032(REF)
.015(REF)
.65
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
L LINE
-11
.063(REF)
.015 (REF)
1
4
LINE
EF)
REF)
5
CHEM-MILL LINE
+Y27.000(REF)
X 131.140 (REF)
5
4
3
2

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18428-11 IS SIMILAR TO LDW280-17128-17
3. FABRICATE -11 PER LPC280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES



FOR ENG REF ONLY
NO SCALE

LDW 280-18428-11

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

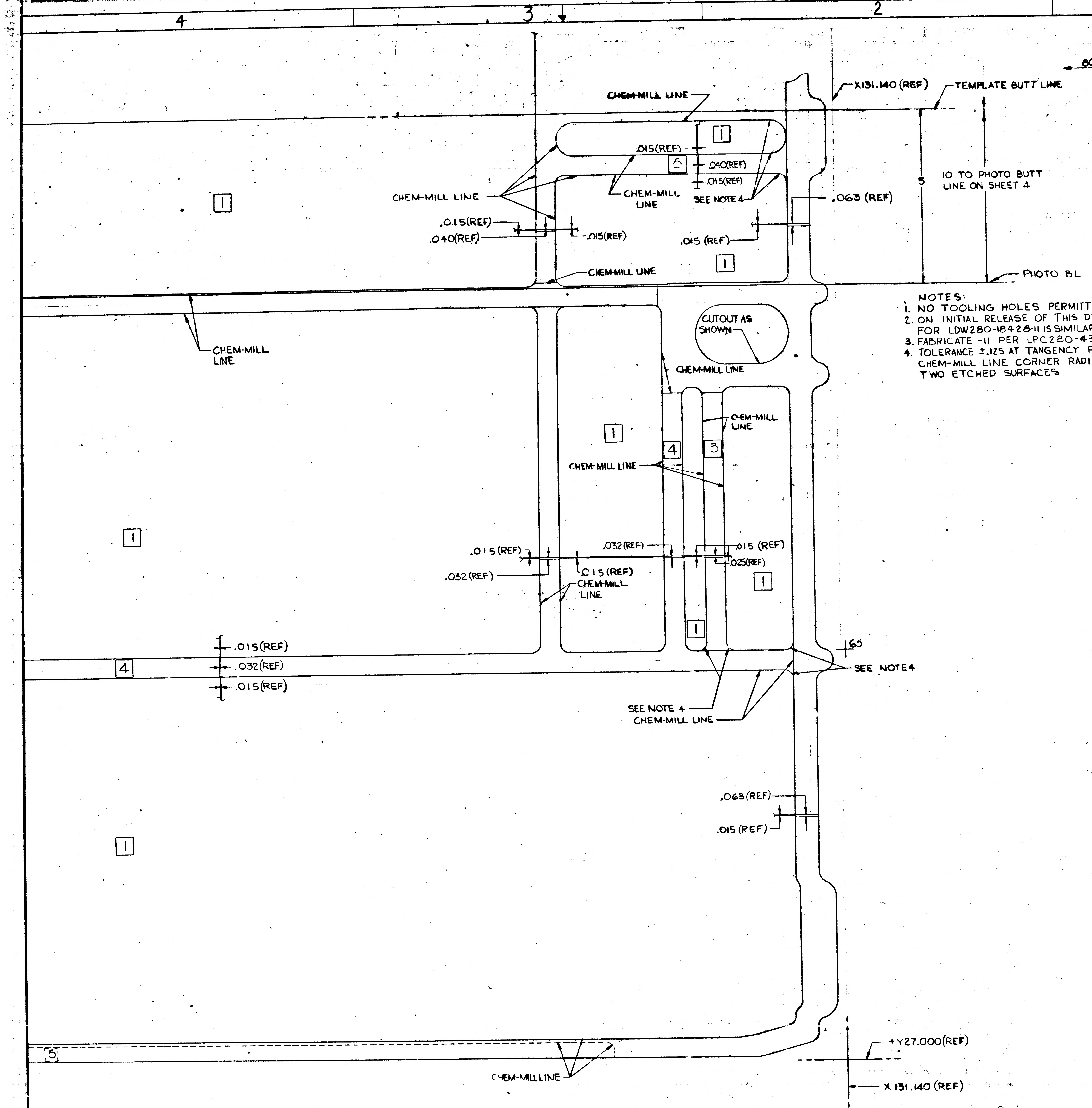
SYMBOL	THICKNESS AFTER CHEM MILL
1	.015 ±.002
2	.019 ±.002
3	$.025^{+.003}_{-.002}$
4	.032 ±.003
5	$.040^{+.004}_{-.003}$
6	.050 ±.004

02/03

NAS 9-110

E IDENT NO.26512
W280-18428 SH 3

GRUMMA
SIZE CODE
J 2
LM
MODEL OR END ITEM SCALE FU
FOR F


4
3
2
CHEM-MILL LINE
X131.140 (REF)
TEMPLATE BUTT LINE
80
30
1
5
.015(REF)
.040(REF)
.015(REF)
CHEM-MILL LINE
SEE NOTE 4
.063 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
CHEM-MILL LINE
.015(REF)
.040(REF)
.015(REF)
.015 (REF)
CHEM-MILL LINE
PHOTO BL
CHEM-MILL LINE
CUTOUT AS SHOWN
CHEM-MILL LINE
CHEM-MILL LINE
4
3
CHEM-MILL LINE
.015 (REF)
.032 (REF)
.032 (REF)
.015 (REF)
.025(REF)
.015 (REF)
CHEM-MILL LINE
.015(REF)
.032(REF)
.015(REF)
65
SEE NOTE4
SEE NOTE 4
CHEM-MILL LINE
.063(REF)
.015 (REF)
5
+Y27.000(REF)
CHEM-MILLLINE
X 131.140 (REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18428-11 IS SIMILAR TO LDW280-17128-17
3. FABRICATE -11 PER LPC280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x94

PRINTING INFO ONLY

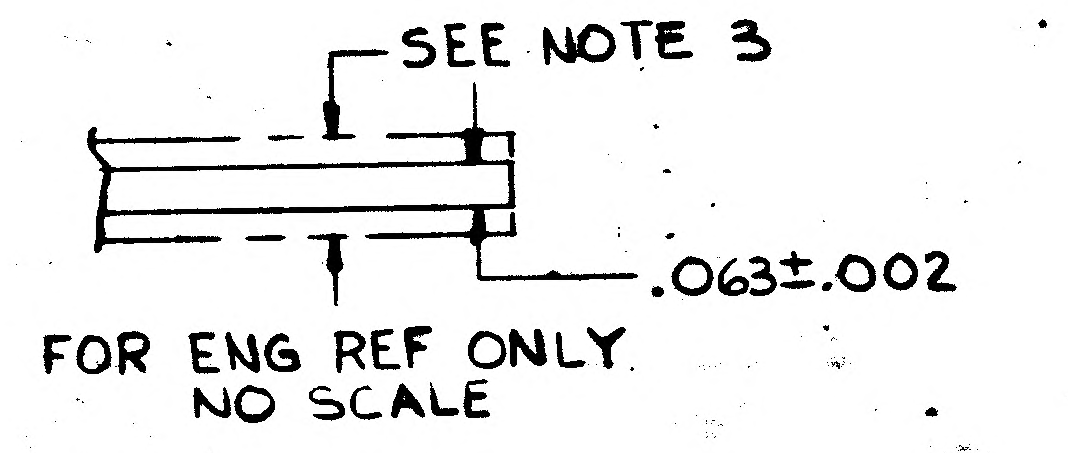
27 SQ. FT.
FULL SIZE SHEET AREA (36x108) =
6.75 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) =

PRINT TRIM LINE

C

B

A


SEE NOTE 3
.063±.002

FOR ENG REF ONLY
NO SCALE

LDW 280-18428-11

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM MILL	*DEPTH OF CUT
1	.015 ±.002	.048(REF)
2	.019 ±.002	.044(REF)
3	.025 +.003 −.002	.038(REF)
4	.032 ±.003	.031(REF)
5	.040 +.004 −.003	.023(REF)
6	.050 ±.004	.013(REF)

LDW280-18428 A

03/03

NAS 9-1100

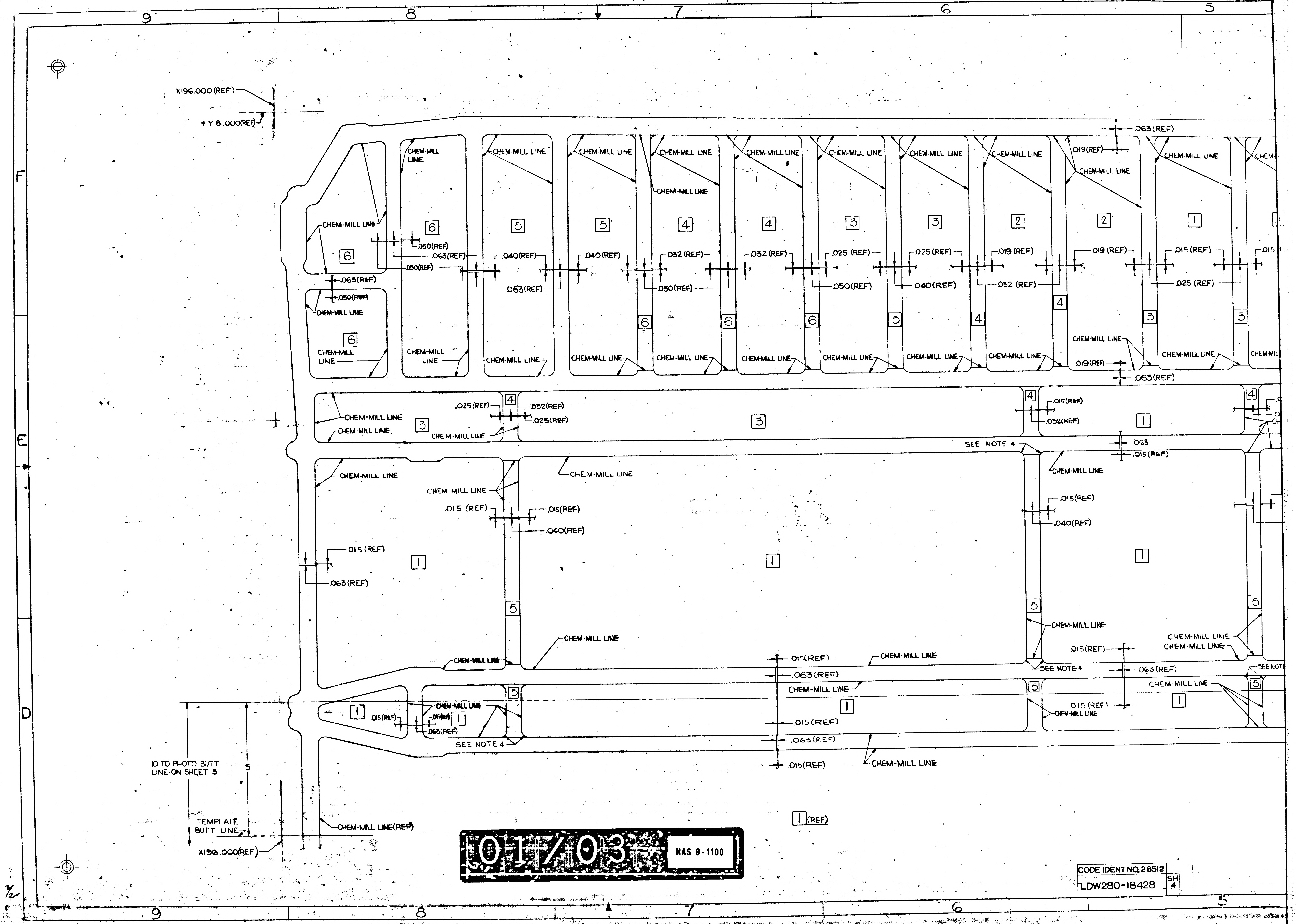
	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L.I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18428	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

3FR

LDW280-18428 A


9
8
7
6
5
F
E
D
X196.000 (REF)
+Y 81.000(REF)
CHEM-MILL LINE
CHEM-MILL LINE (REF)
6
5
4
3
2
1
.063 (REF)
.050 (REF)
.040 (REF)
.032 (REF)
.025 (REF)
.019 (REF)
.015 (REF)
.063
SEE NOTE 4
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMPLATE BUTT LINE
1 (REF)

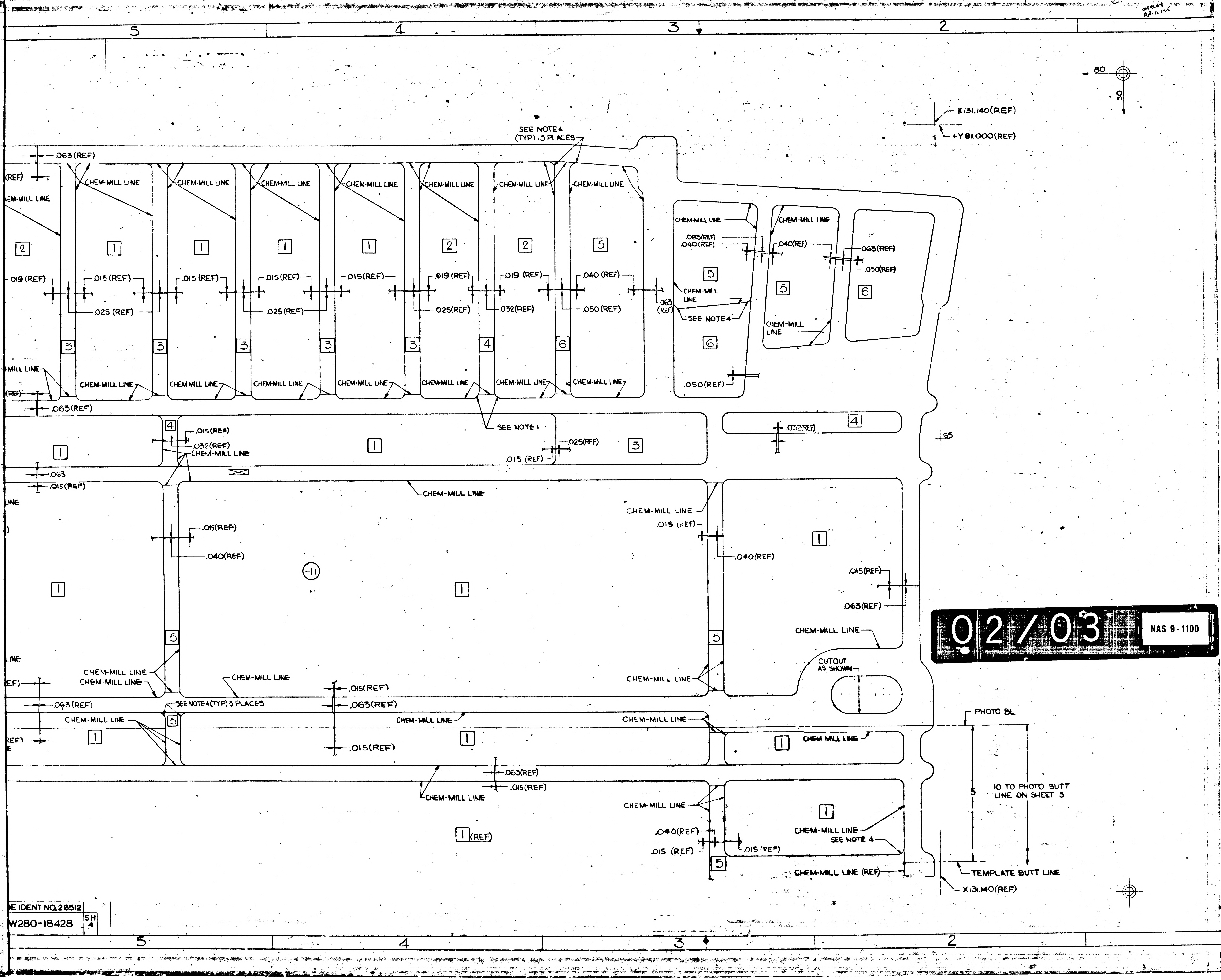
01/03

NAS 9-1100

CODE IDENT NO. 26512

LDW280-18428

SH 4

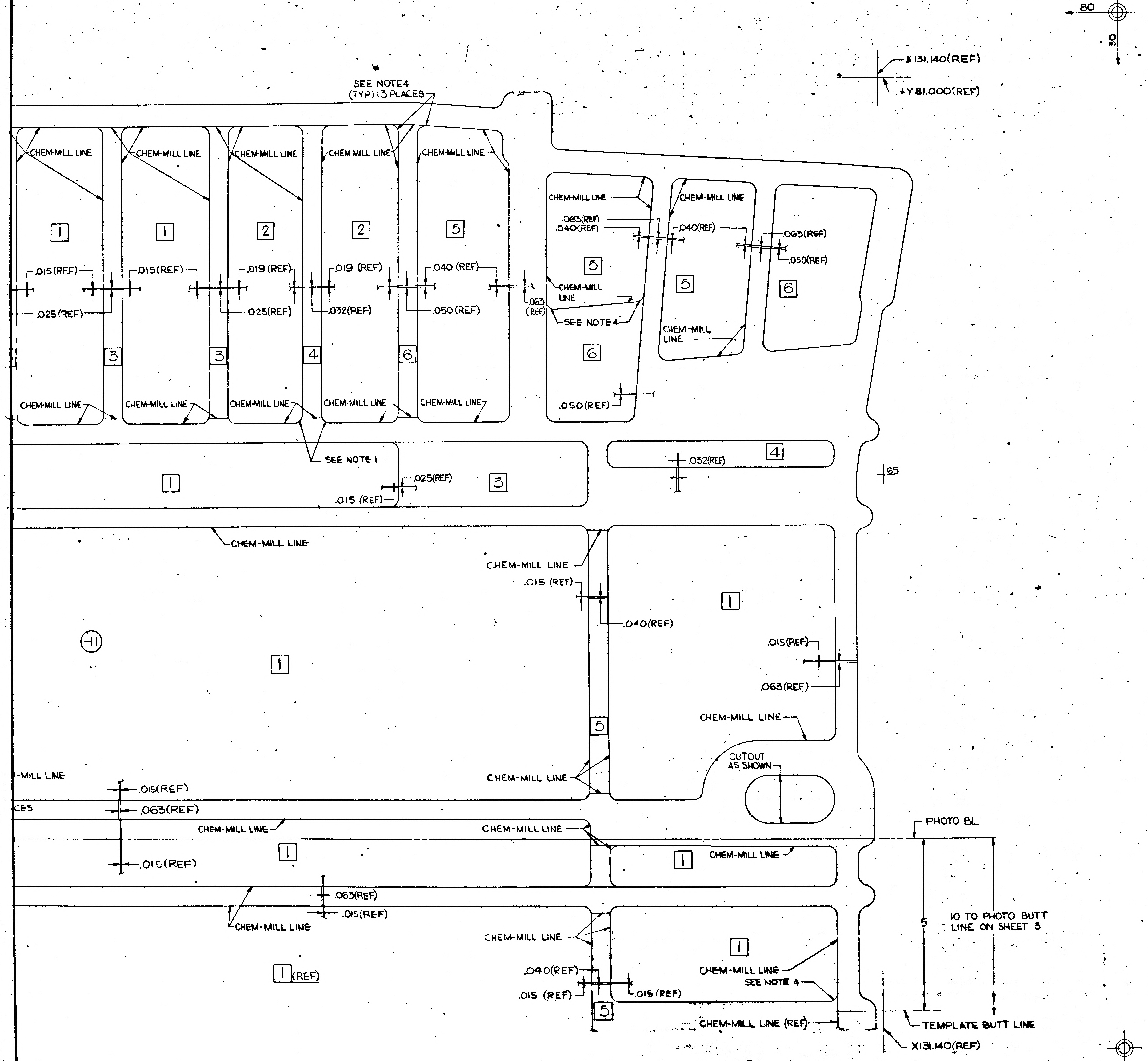

GEOMETERM OVERLAY
OVERLAY
5
4
3
2
80
30
X131.140(REF)
+Y81.000(REF)
SEE NOTE 4
(TYP) 13 PLACES
.063 (REF)
(REF)
CHEM-MILL LINE
2
1
5
6
4
3
.019 (REF)
.015 (REF)
.025 (REF)
.032 (REF)
.040 (REF)
.050 (REF)
.063 (REF)
SEE NOTE 4
SEE NOTE 1
.015 (REF)
.032(REF)
.025(REF)
.015(REF)
.040(REF)
.063
65
(11)
CUTOUT AS SHOWN
SEE NOTE 4 (TYP) 3 PLACES
PHOTO BL
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
X131.140(REF)
CHEM-MILL LINE (REF)
1 (REF)
DE IDENT NO. 26512
W280-18428
SH 4
FOR

02/03

NAS 9-1100

GEOMETRY OVERLAY

OVERLAY
12-1-65



80
30
X131.140(REF)
+Y81.000(REF)
SEE NOTE 4
(TYP) 13 PLACES
CHEM-MILL LINE
1
2
5
3
4
6
.015(REF)
.025(REF)
.019(REF)
.032(REF)
.040 (REF)
.050 (REF)
.063
(REF)
.083(REF)
.040(REF)
.063(REF)
.050(REF)
CHEM-MILL LINE
SEE NOTE 4
.050(REF)
SEE NOTE 1
.025(REF)
.015 (REF)
.032(REF)
65
.015 (REF)
.040(REF)
.015(REF)
.063(REF)
(11)
CUTOUT
AS SHOWN
.015(REF)
.063(REF)
.015(REF)
PHOTO BL
10 TO PHOTO BUTT LINE ON SHEET 3
5
.063(REF)
.015(REF)
1 (REF)
.040(REF)
.015 (REF)
.015 (REF)
SEE NOTE 4
CHEM-MILL LINE (REF)
TEMPLATE BUTT LINE
X131.140(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 108) = 27 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.75 SQ. FT.

PRINT TRIM LINE

LDW280-18428 A

LDW280-18428 A

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-18428	A
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

3FR

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO LDW280-18428 *
EO NO. A1
CONTROL INFO NO. LDW280A-8786

CREATE -11 WEB IDENTICAL TO LDW280-17128 -17 WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T = S
EFF: N/A LDW280-23528 LTA-3D(13)
N/A LDW280-54528 LM4(34) THRU LM15(45) (1 REQ/MOD)

(ADD) → LDW280-18428-11 WEB

CHEM-MIL LINE TOL.... (SAME)

LDW280-17128-17 (REF)	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	1	.015 ±.002	.048 (REF)
2			
3			
4	2	.019 ±.002	.044 (REF)
5	3	.025 +.003 −.002	.038 (REF)
6	4	.032 ±.003	.031 (REF)
7	5	.040 +.004 −.003	.023 (REF)
8	6	.050 ±.004	.013 (REF)

ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18428-11 IS SIMILAR TO LDW280-17128 -17

-11 IDENTICAL TO LDW280-17128-17 REV D INCLUDING EO E1 (LEO 545, E2 (LEO 599), E3, E4

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1997

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU LM15 (45)	
		LTA-3D (13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENG	PROJ ENGRG	
*		NOT REQ		DATE	8/18/67 VDI			JJS 8/18/67	NM 8-14-67		WRB 8/21/67	8/22/67

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	WEB - DESCENT STAGE - BEAM PANEL	LDW280-18428	A1

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL/25

01 NAS 9-1100

01

NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE ✱ (✱. USE NEXT AVAILABLE NOTE #)

NOTE✱ - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE *X,Y,Z (X,Y, & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(✱) REMOVED NOTE *(X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	&LTA-3D(13)

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY				—	NM		
DATE 8/21/67				—	8/23/67		8/24/67 8-28-67
V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO $.XXX^{+.003}_{-.002}$

DWG	TITLE	CHANGE
✓ LDW280-18424	SEE DWG	B1
✓ -18425		B1
✓ -18426		B1
✓ -18427		B1
✓ -18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1997	5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE $.XXX^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE C: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

	APPROVED BY	DATE
		9/7/67
VDI		9/7/67
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		9/7/67
STRESS GROUP		9-7-67
LIAISON ENGRG		
PROJ ENGRG		9/7/67
		9-7-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG. NO. LDW280-18428
EO NO. B2
CONTROL INFO NO. LDW280A9615

ADD -13 IDENTICAL TO LDW280-17128-17 (REV D & EO'S E1 THRU E4) EXCEPT AS NOTED.
-13 EFF LTA-3(13) N/A LDW280-23528 & LM-6(36) THRU LM-15(45) N/A LDW280-54528 1 REQD/NHA
-13 STOCK GAGE .071 FINISH & PROCESS "SEE NOTE *" ADD -13 TO "NOTE *" REF EO A2 (LEO 696)
LDW280-17128 NOTES NOT APPLICABLE -13 I & T = S
REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) FROM -11
(REF) TOOLING FOR LDW280-18428-13 SIMILAR TO LDW280-17128-17

A2 LEO 696

(WAS) (IS)

LDW280-17128-17	LDW280-18428-13		
SYMBOL	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1 009 2 011	1	.012 $^{+.003}_{-.002}$	.051 (REF)
3 013	2	.015 $\pm^{.003}_{.002}$	.048 (REF)
4 019	3	.019 ± .003	.044 REF
5 025	4	.025 $\pm^{.004}_{.003}$	.038 (REF)
6 032	5	.032 ± .004	.031 (REF)
7 040	6	.040 $^{+.005}_{-.004}$	.023 (REF)
8 050	7	.050 ± .005	.013 (REF)

* USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2220 3

REASON FOR EO: REVISE MIN. WEB GAGE

DESCRIPTION OF EO: ADDED -13
REMOVED LTA-3(13), LM-6(36) THRU LM-15(45) REQMTS FROM -11

GAEC EO RELEASE: JK 10/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: REWORK ☐ ✓ -11 SCRAP
APPROVED BY: B VDI
DATE: 10/18/67
SUPPORT / RELIAB. GROUP / GROUP LEADER / STRESS GROUP: 10/18/67 / LIAISON ENGRG / PROJ ENGRG: 10/18/67 / 10-18-67

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE - BEAM PANEL RH FWD
DRAWING NO.: LDW280-18428
EO NO.: B2

ISSUED BY: 10/20 J. LANG J. ANDERSEN / V. STRAKOSCH X1153 10/17/67
SECTION: VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 1359
CONTROL INFO NO. LDW280B 7433	

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18417 ✓	A2	SEE DWG
-18418 ✓	A5	
-18419 ✓	A3	
-18420 ✓	B2	
-18424 ✓	B4	
-18425 ✓	B4	
-18426 ✓	B4	
-18427 ✓	B4	
-18428 ✓	B4	
LDW280 -18429	C1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCD 3587 PKG 54 PG. 8-9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/11/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LM-15(45)		✓			✓

APPROVED BY				PBT	WJH		
DATE	4/8/69			4-2-69	4/8/69	4/9/69	4/10/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1359

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1696
CONTROL INFO NO. LDW 280 B 8747		

FOR THE DRAWINGS LISTED BELOW - DELETE LM-10 (40) THRU LM-14 (44), & LTA-11 (23) EFFECTIVITIES FROM ALL DASH NUMBERS* THAT NEXT ASSEMBLE INTO LDW280-54528

DWG NO (*)	CHANGE NO.	DWG NOMENCLATURE
✓ LDW280-18428	B6	SEE DWG
LDW 280-17662	B7	↕
LDW280-17664	B5	↕
LDW 280-17830	B6	SEE DWG

* APPLICABLE DASH NUMBERS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 63 CCA 2333 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF BEAM PANEL FOR H2O, GOX & MESA SUPPORT STRUCTURE	DELETED LM-10 (40) THRU LM-14 (44), & LTA-11 (23) FROM —* FOR N/A LDW 280-54528.	9-23-69 JK 9/30/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	ZDR						M. Dav
DATE	9/23/69			9-22-69	9/23/69		9/23/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1696

100369
ISSUED BY TDALY / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18429 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-23529	LM-5 (35	1
LM	LDW280-23529	LM-4(34)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18429-19		GAEC SCH NO.	

LM	LDW280-23529	LTA-3 (13)	1
		LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
LM	LDW280 23529	LTA-3D/R (46)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18429-21		GAEC SCH NO.	

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO B	
LAST DASH NO. USED	-21	PRIM NO. 207	SK(001) ME-310 12/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1997

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	H. DEUTSCH 9-1-67
LAYOUT BY	PLANTE
CHECKED BY	J Karsmar 9-18-67
GR ~~LEADER~~	
VEH DES INT	J Stulossn 9/23/67
STRUCTURE	WB 9/61 9/25/6
STRUCTURE	JEP 9/25
WEIGHTS	
PROJ ENGR	9/23/67
REL GROUP	9-27-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - BEAM PANEL
ENGINE COMPARTMENT - FWD

SIZE B
CODE IDENT NO. 26512
LDW280-18429 B
SCALE NONE
SHEET 1.00 OF 5

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3.00 4.00				✓		EO A1 LCD 1997	EO INITIAL DWG RELEASE PARTS MADE PER EO.	LM-4 (34) THRU LM-15 (45) LTA-3D (13)	NOT	REQ'D	H. DEUTSCH 8-31-67		9-27-67
	2.	1.00, 1.10 2.00, 4.00	8G 6A			✓		EO A2 LCD 1997	ADDED -13, REMOVED -11 REQUIREMENTS			-11			
	3	1.00, 1.10 2.00, 3.00 4.00	8A 8G 6A			✓		EO A3 LCD 1997	ADDED -15, REMOVED -13			-13			
	4	1.10, 3.00				✓		LEO 280-696 LCD 1997	ADDED NOTE # (*). REMOVED NOTE # (X, Y, Z)		NOT	REQ'D			
	5	1.00, 1.10 2.00, 3.00	6A			✓		LEO 280-698 LCD 1997	ADDED -17, REMOVED -15			-15			
	6	1.10							REF EO A1 AND LEO 280-696, ALL NOTES NOT APPLICABLE. ADDED NOTES # 1, 2, 3 & 4.		NOT	REQ'D	JK		
B	1	1.10 & 3.00 1.00				✓		LEO-280-706 LCD 1997	ON-17 REVISED CHEM-MILL TOLERANCE $.015^{+.003}_{-.002}$ WAS .015 ± .002	LTA-3D (13) LM-4 THRU LM-15	NOT	REQD	R. NISBET 12-6-68		
	2	1.10, 3.00, 4.00					✓	E.O. B2, LCD 1997	ADDED SLOT CUT OUT FOR -17		✓				
	3	1.00, 1.10, 2.00, 3.00 & 4.00	6A	T		✓		E.O. B3, LCD 1997	REMOVED -17 ADDED -19			-17			
	4	1.00, 1.10, 2.00 3.00 & 4.00	6A	B		✓	✓	E.O. B4, LCD 2183 LCD 1997, LCD 2220	ADDED -21 & NOTE 5, REMOVED LM-6 (36) THRU LM-15 (45), LTA-3 (13) REQUIREMENTS FROM -19	LTA-3 (13) LM-6 THRU LM-15		-19			
	5	1.10, 3.00, 4.00	9A 9F				✓	E.O. B5	FOR -21, IN FLD/DWG REVISED CORNER TRIM (2 PLACES)	LTA-3 (13) LM-6 THRU LM-15	✓				
	6	1.00, 1.10				✓		LEO 280-987 LCD 3174	FOR -21 ADDED LTA-3D/R EFF.	LTA-3D/R (46)	NOT	REQD	ES		

	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS
CHG APPROVED	A	—	9/23/67	WBWJH 9/25/67	9/25	
	B					

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18429	B

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-18429-21	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 X 57 X 67	SEE NOTE 5		6A
							LDW280-18429-19	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 X 57 X 67	SEE NOTE 4		6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18429
B

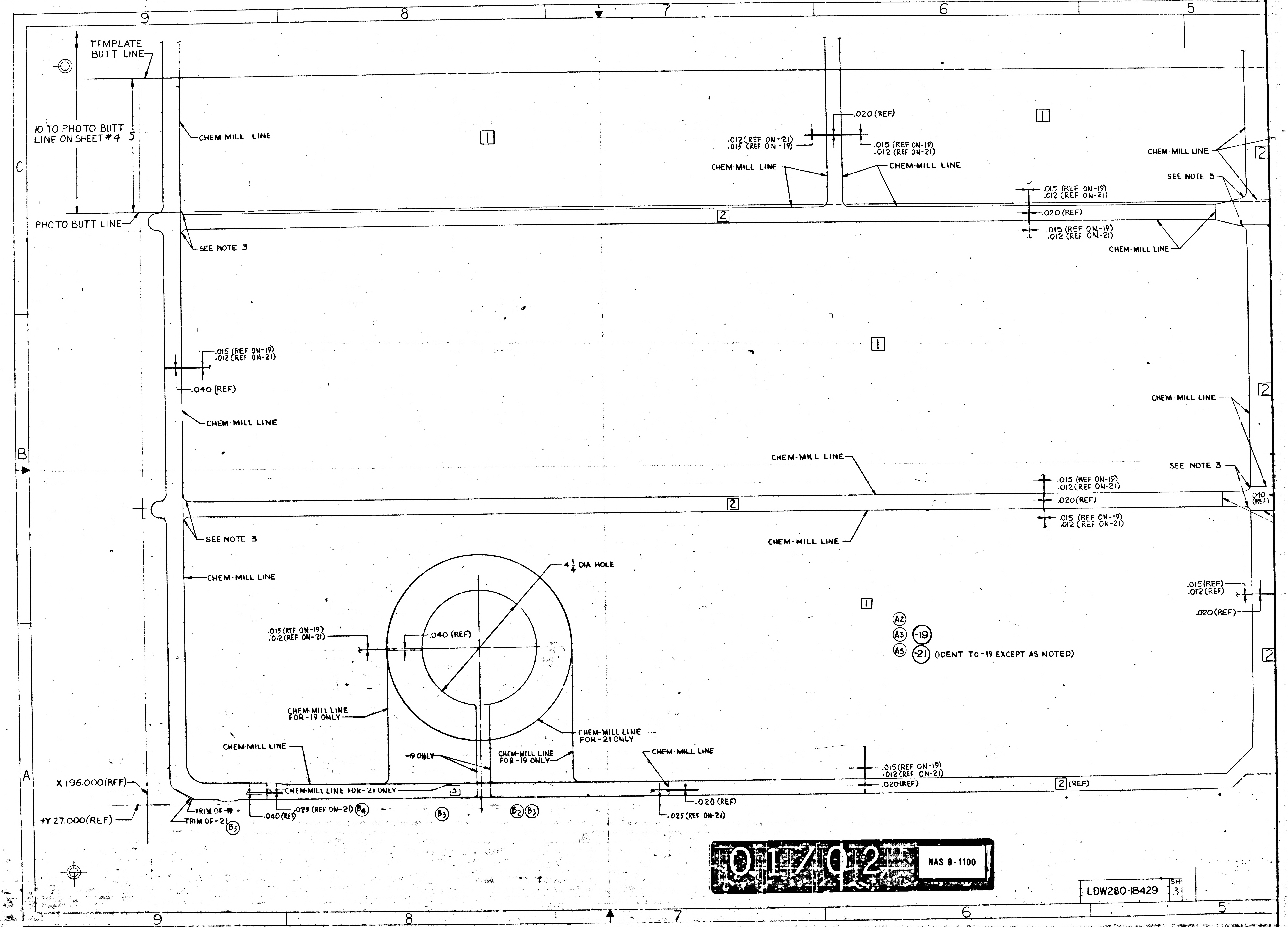
SCALE NONE
SHEET 2.00

B
1

ENG 77.2 7-65

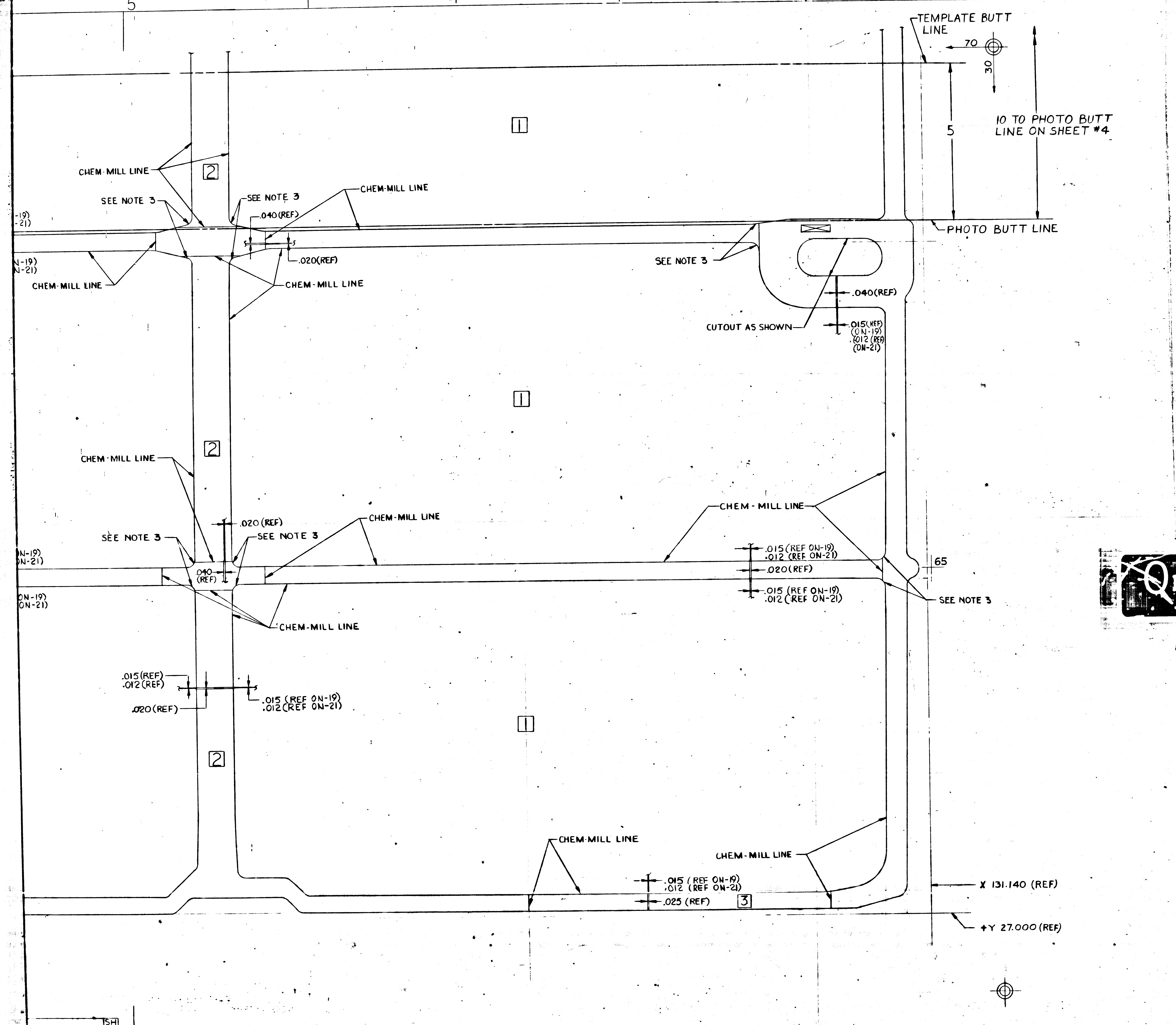
01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET #4 5
PHOTO BUTT LINE
CHEM-MILL LINE
SEE NOTE 3
1
2
.020 (REF)
.012 (REF ON-21)
.015 (REF ON-19)
.015 (REF ON-19)
.012 (REF ON-21)
.040 (REF)
.040 (REF)
4 1/4 DIA HOLE
CHEM-MILL LINE FOR-19 ONLY
CHEM-MILL LINE FOR-21 ONLY
-19 ONLY
.015 (REF)
.012 (REF)
.020 (REF)
.025 (REF ON-21)
2 (REF)
3
X 196.000 (REF)
+Y 27.000 (REF)
TRIM OF-19
TRIM OF-21
B5
B4
B3
B2
A2
A3
A5
-19
-21 (IDENT TO-19 EXCEPT AS NOTED)

01/02 NAS 9-1100

LDW280-18429 SH 3


TEMPLATE BUTT LINE
70
30
5
10 TO PHOTO BUTT LINE ON SHEET #4
PHOTO BUTT LINE
CHEM MILL LINE
SEE NOTE 3
.040 (REF)
.020 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
-19)
-21)
N-19)
N-21)
SEE NOTE 3
.040 (REF)
CUTOUT AS SHOWN
.015 (REF) (ON-19)
.012 (REF) (ON-21)
1
2
CHEM-MILL LINE
.020 (REF)
SEE NOTE 3
CHEM-MILL LINE
CHEM - MILL LINE
.015 (REF ON-19)
.012 (REF ON-21)
.020 (REF)
65
.040 (REF)
SEE NOTE 3
.015 (REF ON-19)
.012 (REF ON-21)
CHEM-MILL LINE
.015 (REF)
.012 (REF)
.020 (REF)
.015 (REF ON-19)
.012 (REF ON-21)
CHEM-MILL LINE
CHEM-MILL LINE
.015 (REF ON-19)
.012 (REF ON-21)
.025 (REF)
3
X 131.140 (REF)
+Y 27.000 (REF)
280-18429
SH 3
5
4
3
2
1

NOTES :

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18429-17 IS SIMILAR TO LDW280-17629-15.
3. TOLERANCE ± .125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
4. FABRICATE LDW280-18429-19 LPC 280-43.
5. FABRICATE & FINISH #76 PER LPC 280-43.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	/

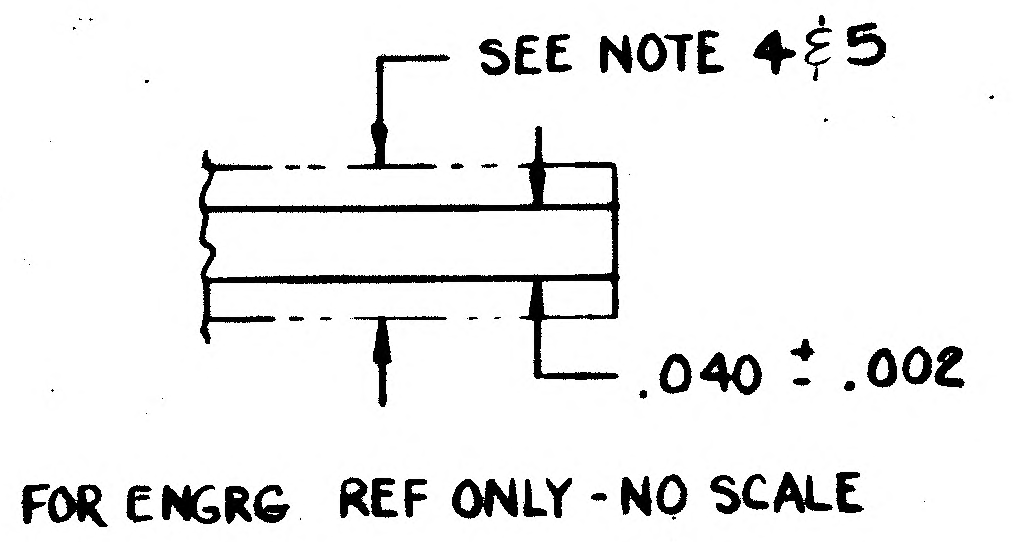
DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

Q2 / Q2

NAS 9-1100


SEE NOTE 4 & 5
.040 ± .002

FOR ENGRG REF ONLY - NO SCALE

LDW280-18429-19

CHEM-MILL LINE TOLERANCE
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	# DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.025 (REF)
2	.020 ± .002	.020 (REF)
3	$.025^{+.003}_{-.002}$	.015 (REF)

LDW280-18429-21

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	# DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.028 (REF)
2	.020 ± .002	.020 (REF)
3	$.025^{+.003}_{-.002}$	.015 (REF)

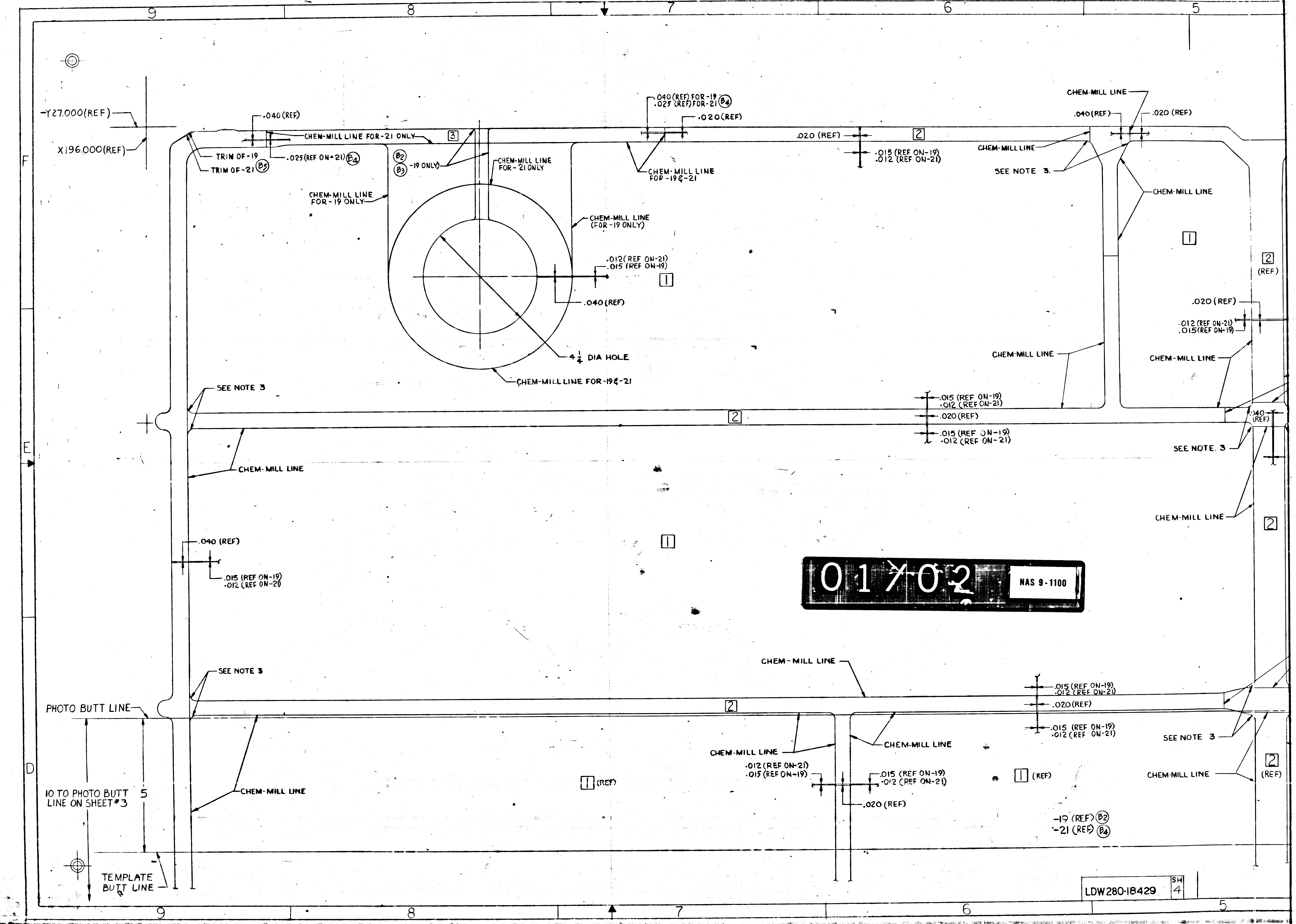
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
	SIZE J	CODE IDENT NO. 26512	LDW280-18429		B
LM MODEL OR END ITEM	SCALE FULL			SHEET 3.0C	

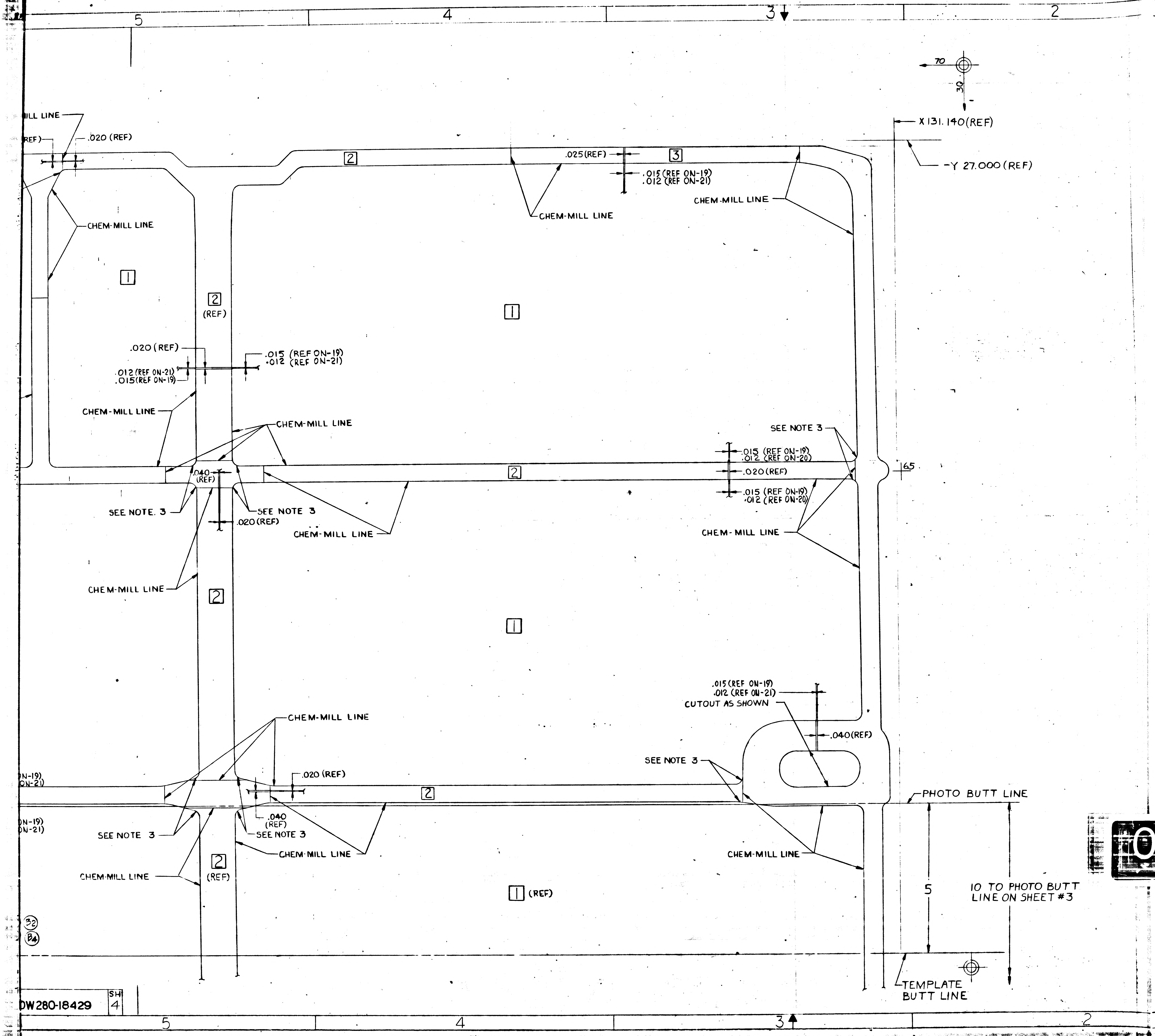
FOR PHOTO REPRODUCTION

2 FR

K2

LDW280-18429 B A


9
8
7
6
5
F
E
D
Y27.000(REF)
X196.000(REF)
.040(REF)
CHEM-MILL LINE FOR-21 ONLY
3
TRIM OF-19
TRIM OF-21 (B5)
.025(REF ON-21) (B4)
(B2)
(B3) -19 ONLY
CHEM-MILL LINE FOR-21 ONLY
CHEM-MILL LINE FOR-19 ONLY
.040(REF) FOR-19
.025 (REF) FOR-21 (B4)
.020(REF)
CHEM-MILL LINE FOR-19&-21
.020 (REF)
2
.015 (REF ON-19)
.012 (REF ON-21)
CHEM-MILL LINE
.040(REF)
.020 (REF)
CHEM-MILL LINE
SEE NOTE 3.
CHEM-MILL LINE
CHEM-MILL LINE (FOR-19 ONLY)
.012(REF ON-21)
.015 (REF ON-19)
1
.040(REF)
4 1/4 DIA HOLE
CHEM-MILL LINE FOR-19&-21
1
2 (REF)
.020 (REF)
.012 (REF ON-21)
.015(REF ON-19)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 3
.015 (REF ON-19)
.012 (REF ON-21)
.020(REF)
2
.015 (REF ON-19)
.012 (REF ON-21)
.040 (REF)
SEE NOTE. 3
CHEM-MILL LINE
CHEM-MILL LINE
2
1
.040 (REF)
.015 (REF ON-19)
.012 (REF ON-21)
01/02
NAS 9-1100
SEE NOTE 3
CHEM-MILL LINE
.015 (REF ON-19)
.012 (REF ON-21)
.020(REF)
.015 (REF ON-19)
.012 (REF ON-21)
SEE NOTE 3
PHOTO BUTT LINE
2
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
1 (REF)
.012(REF ON-21)
.015 (REF ON-19)
.015 (REF ON-19)
.012 (REF ON-21)
.020 (REF)
1 (REF)
CHEM-MILL LINE
2 (REF)
10 TO PHOTO BUTT LINE ON SHEET #3
5
-19 (REF) (B2)
-21 (REF) (B4)
TEMPLATE BUTT LINE
LDW280-18429
SH 4


5
4
3
2
MILL LINE
(REF)
.020 (REF)
CHEM-MILL LINE
1
2
(REF)
.025(REF)
3
.015 (REF ON-19)
.012 (REF ON-21)
CHEM-MILL LINE
CHEM-MILL LINE
70
30
X 131.140(REF)
Y 27.000(REF)
.020 (REF)
.012 (REF ON-21)
.015 (REF ON-19)
.015 (REF ON-19)
.012 (REF ON-21)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 3
.015 (REF ON-19)
.012 (REF ON-20)
.020(REF)
.015 (REF ON-19)
.012 (REF ON-20)
.65
.040 (REF)
SEE NOTE. 3
SEE NOTE 3
.020(REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
.015 (REF ON-19)
.012 (REF ON-21)
CUTOUT AS SHOWN
.040(REF)
CHEM-MILL LINE
SEE NOTE 3
ON-19)
ON-21)
.020 (REF)
PHOTO BUTT LINE
ON-19)
ON-21)
.040 (REF)
SEE NOTE 3
SEE NOTE 3
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
1 (REF)
5
10 TO PHOTO BUTT LINE ON SHEET #3
TEMPLATE BUTT LINE
32
B4
LDW280-18429
SH 4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING RE[illegible] HOLES PER MIL-S[illegible]

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99)= 25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6 SQ. FT.

PRINT TRIM LINE

F

E

D

LDW280-18429 B

02/02

NAS 9-1100

LDW280-18429 B

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18429	B
	SCALE FULL		SHEET 4.00	

(5)

1
FOR PHOTO REPRODUCTION
2FR K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*1

DWG. NO. LDW280-18429 | EO NO. A1
CONTROL INFO NO. LDW280A8787

CREATE -11 WEB IDENTICAL TO LDW280-17629-15 WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T= NONE
EFF: N/A LDW280-23529 LM4(34) THRU LEM 15(45) &LTA-3D

(REF)	(ADD) LDW280-18429-11		
LDW280	CHEM-MILL LINE TOL.... (SAME)		
17629-15	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
[1] [2] [3]	[1]	.015 ±.002	.025(REF)
[4]	[2]	.020 ±.002	.020(REF)
[5]	[3]	$.025^{+.003}_{-.002}$	.015(REF)

-11 1 REQ/MOD
ADD NOTE
ON INITIAL RELEASE OF THIS DWG
TOOLING FOR LDW280-18429-11
IS SIMILAR TO LDW280-17629-15

*NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1997 5

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS

DESCRIPTION OF EO: EOA1 INITIAL DWG RELEASE PARTS MADE PER EO

Ⓡ GAEC C EO RELEASE: JK 8/18/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	LM15(45)
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ — REWORK, SCRAP

APPROVED BY				—				
DATE	8/16/67			—	8/17/67		8/17/67	8-18-67
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: DESCENT STAGE ~~BEAM~~ WEB BEAM PNL ENG COMPT. FWD
DRAWING NO.: LDW280-18429
EO NO.: A1

ISSUED BY 8/18 PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

A

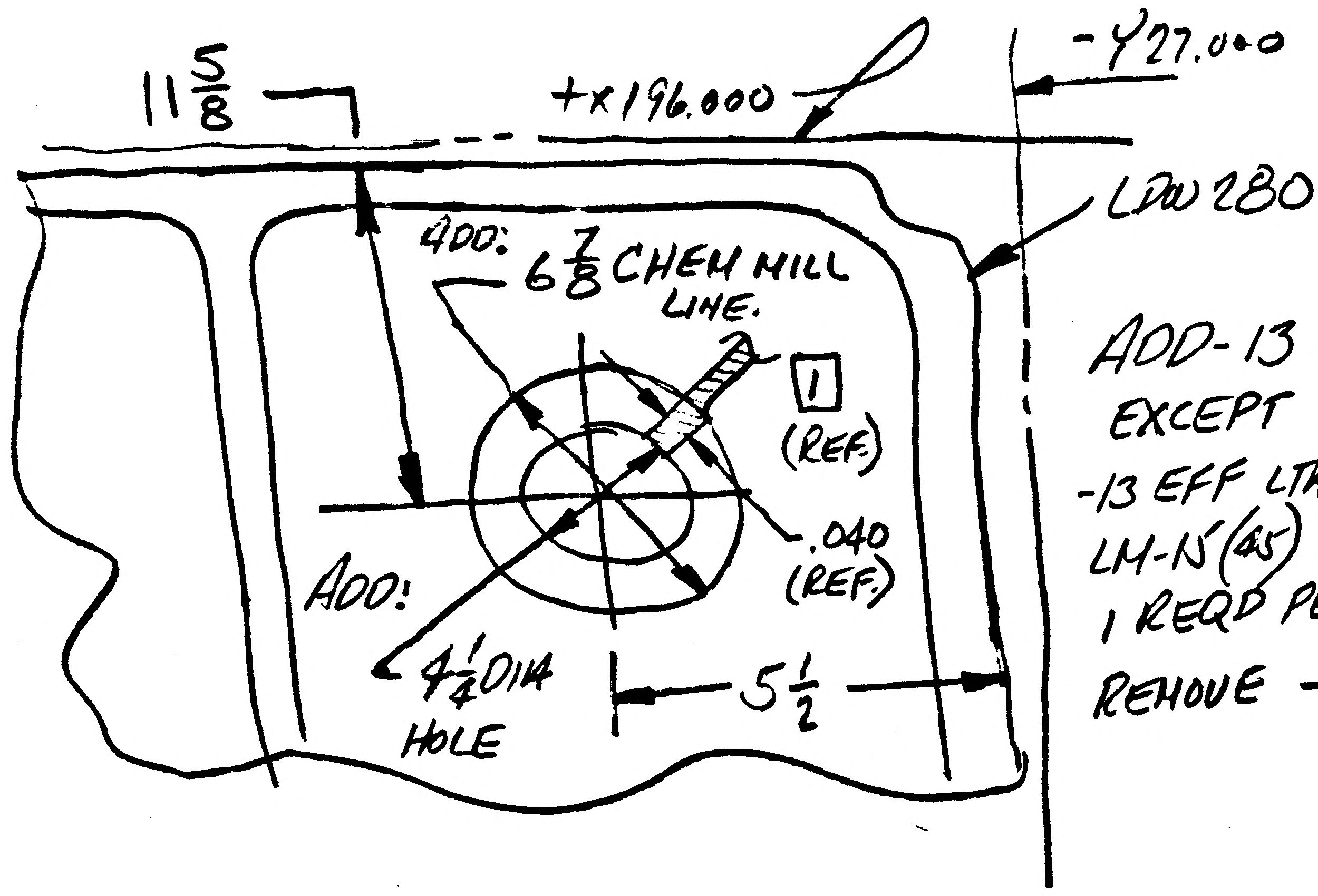
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18429		EO NO. A2
CONTROL INFO NO. LDW280A 8857		



ADD-13 IDENTICAL TO -11 EXCEPT AS NOTED.
-13 EFF LTA-3D(13), LM-4(34) THRU LM-15(45) N/A LDW280-23529
1 REQD PER MODULE.
REMOVE -11 REQMTS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1997

5

REASON FOR EO: ADD CHEM-MILL LAND FOR DOUBLER RIVETING TO ELIMINATE BONDING.

DESCRIPTION OF EO: ADDED -13, REMOVED -11 REQMTS

② GAEC EO RELEASE	
JK	8/22/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	
		LM-4(34) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-11
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					WB NM				
DATE	8/21/67			8/9/67	8/21/67		8/21/67	8/22/67	
	V.D.I.	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~D.S.~BEAM PANEL ENG COMPT~FWD.	LDW280-18429	A2

8/23
ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

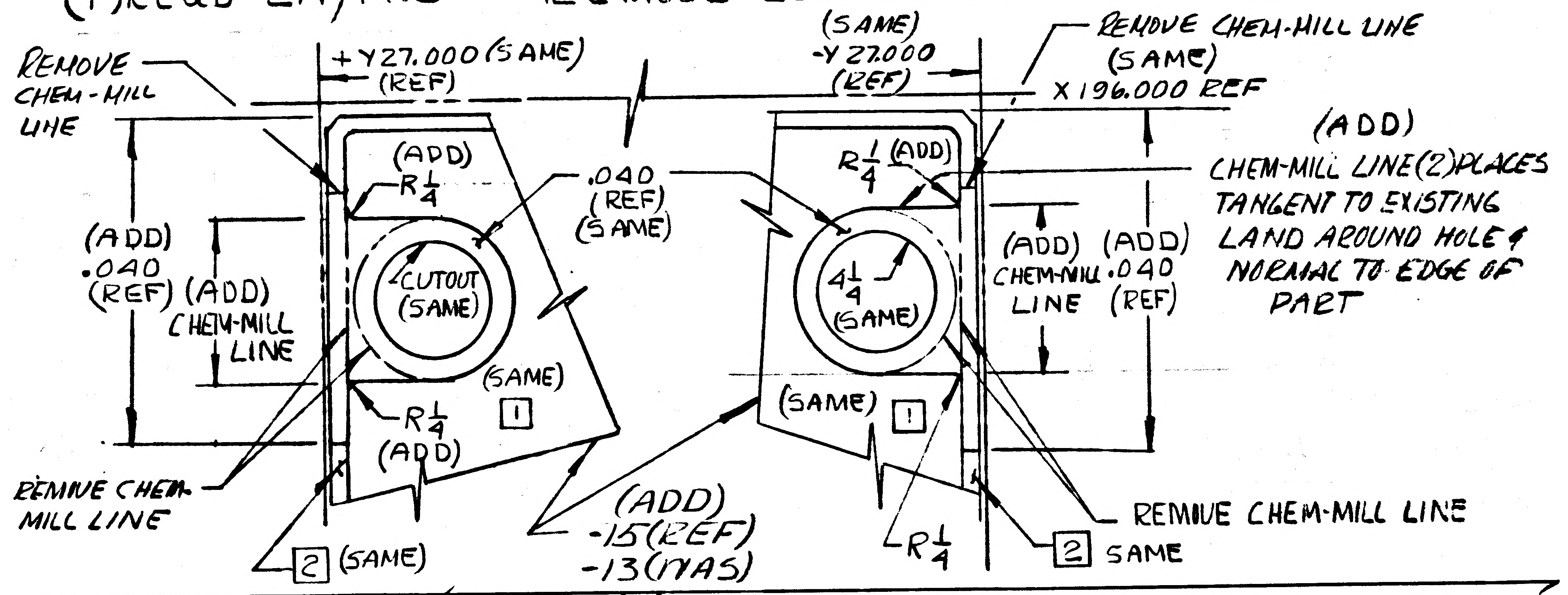
A.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18429		EO NO. A3
CONTROL INFO NO. LDW280A 8935		

CREATE -15 WEB IDENTICAL TO -13 WEB EXCEPT AS SHOWN.
-15 EFF LM-4(34) THRU LM-15(45) + LTA-3D(13) N/A LDW280-23529
(1) REQD EA/MOD REMOVE LDW280-18429-13 WEB REQMTS.



REMOVE CHEM-MILL LINE
+Y27.000 (SAME) (REF)
(SAME) -Y27.000 (REF)
REMOVE CHEM-MILL LINE (SAME)
X196.000 REF
(ADD) CHEM-MILL LINE (2) PLACES TANGENT TO EXISTING LAND AROUND HOLE + NORMAL TO EDGE OF PART
(ADD) R 1/4
.040 (REF) (SAME)
R 1/4 (ADD)
(ADD) .040 (REF)
(ADD) CHEM-MILL LINE
CUTOUT (SAME)
4 1/4 (SAME)
(ADD) CHEM-MILL LINE
(ADD) .040 (REF)
(SAME) 1
R 1/4 (ADD)
(SAME) 1
REMOVE CHEM-MILL LINE
2 (SAME)
(ADD) -15 (REF) -13 (WAS)
R 1/4
REMOVE CHEM-MILL LINE
2 SAME

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1997

REASON FOR EO: CHEM-MILL LAND TO SALVAGE WIRE RUNS

DESCRIPTION OF EO: ADDED -15 REMOVED -13

GAEC EO RELEASE: JK 8/28/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	NM			
DATE	8/25/67			—	8/26/67		8/26/67	8-26-67
	VDI							

PRIORITY: C

DRAWING TITLE: WEB DESCENT STAGE BEAM PANEL ENG. COMPT - FWD

DRAWING NO.: LDW280-18429

EO NO.: A3

8/28
ISSUED BY J. ANDERSEN / J. STRAKCSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A3	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE *X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL 997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE *(X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL: LM

EFFECTIVITY
PROCURING ACTIVITY NO.:
GAEC UNIT NO.: LM4(34) THRU LM15(45)
SUB CONTR UNIT NO.: 8LTH-3D(13)

DRAWING CHANGE REQD: ✓ REVISE DWG
RECORD EO:
DISPOSITION OF PARTS: NOT REQD
REWORK
SCRAP

APPROVED BY
DATE 8/21/67
V.D.I.
SUPPORT
RELIAB. GROUP
GROUP LEADER —
NM 8/7-67 G.
LIAISON ENGRG
PROJ ENGRG 8/24/67
8-28-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO280
EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWG S ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASSY, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB - D.S. - END BLKD - R.H. END BHD
✓	" -18425	-11	-13	A3	" - L.H. END BHD
✓	" -18426	-11	-13	A3	" - FWD END BHD
✓	" -18427	-11	-13	A3	" - AFT END BHD
✓	" -18429	-15	-17	A5	" D.S. - BEAM PANEL - FWD ENG. COMPT
	" -18432	-13	-15	A4	" - AFT ENG COMPT
	" 18435	-11	-13	A3	" - R.H ENG COMPT
	" -18438	-15	-17	A6	" - L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 ok 5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED - *, REMOVED - **.

Ⓡ GAEC EO RELEASE: VK 8/30/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAP			Z	NM			
DATE	8/21/67				8/23/67		8/24/67	8/30/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 698

8/25
ISSUED BY PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
✓ LDW280-18424	SEE DWG	B1
✓ -18425	↑	B1
✓ -18426		B1
✓ -18427		B1
✓ -18428		B1
✓ -18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443	↓	B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ± .002

GAEC C EO RELEASE: JK 9/7/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	LTA-3D(13)
		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

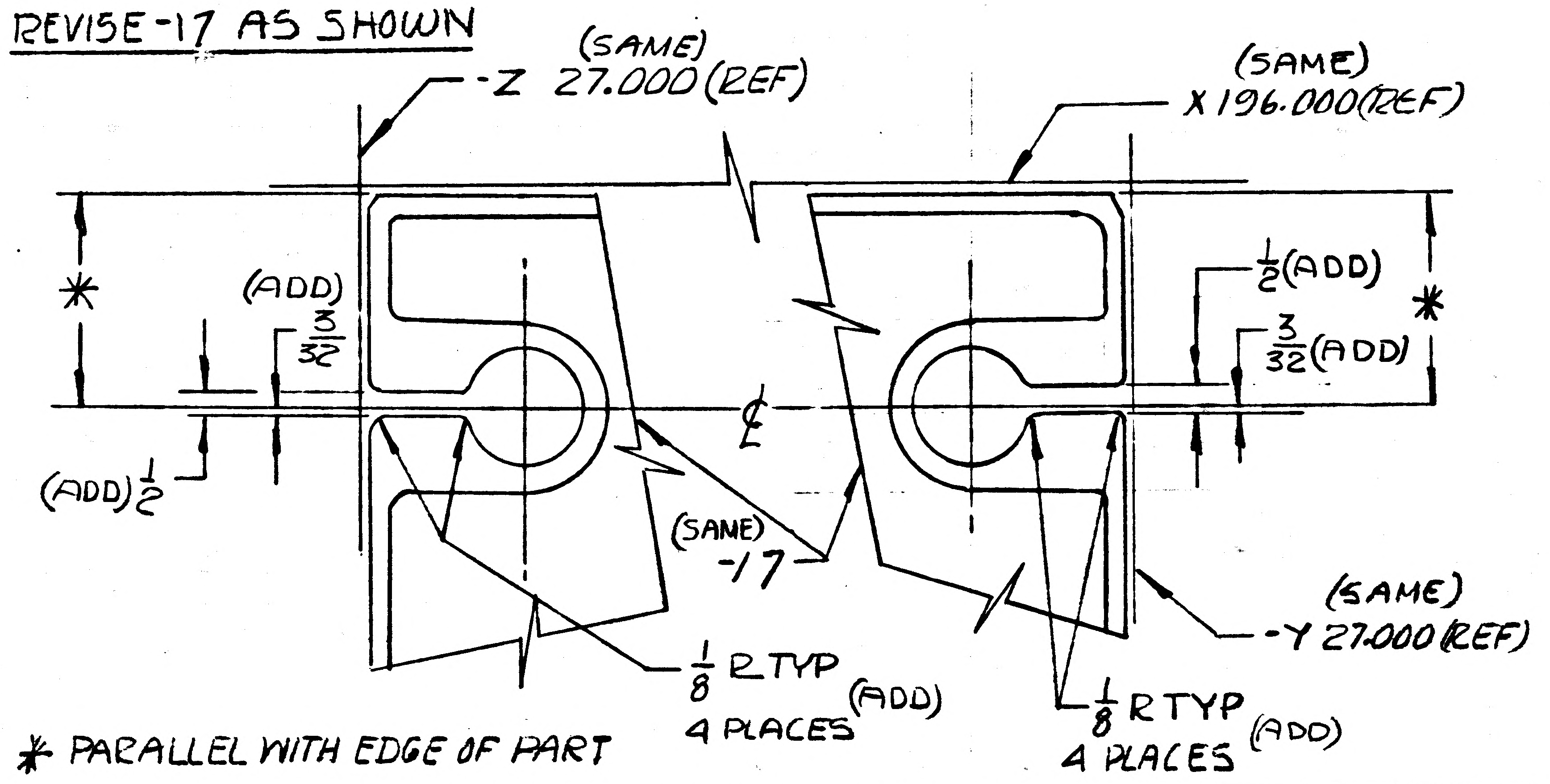
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 ✳
ENGINEERING ORDER

DWG. NO. LDW280-18429
EO NO. B2
CONTROL INFO NO. LDW280A8698

REVISE -17 AS SHOWN


(SAME)
-Z 27.000 (REF)
(SAME)
X 196.000 (REF)
✳
(ADD) 3/32
(ADD) 1/2
1/2 (ADD)
3/32 (ADD)
✳
℄
(SAME)
-17
(SAME)
-Y 27.000 (REF)
1/8 R TYP (ADD)
4 PLACES
1/8 R TYP (ADD)
4 PLACES

✳ PARALLEL WITH EDGE OF PART

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1997 3

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC CL EO RELEASE
SALVAGE OF WIRE RUNS	ADDED SLOT CUTOUT FOR -17	JC 9/9/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	LM-15 (45)
		LTA-3 (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	9/8/67			9/8/67	9/8/67		9/8	9/9/67

PRIORITY: C
DRAWING TITLE: WEB-DESCENT STAGE BEAM PANEL ENG COMPT - FWD
DRAWING NO.: LDW280-18429
EO NO.: B2

9/9
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18429
EO NO. B3
CONTROL INFO NO. L VZ80A 9215

REMOVE -17 & ADD -19
-19 IDENTICAL TO -17 EXCEPT 3/32 S/B 11/32
& +Y 27.000 S/B -Z 27.000

REF. EO-B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997.K 3

REASON FOR EO	INCORRECT DIM FOR SLOT LOCATION
DESCRIPTION OF EO	REMOVED -17 ADDED -19
Ⓡ GAEC EO RELEASE	JK 9/18/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(B4) THRU	LM-15(45)
		LTA-3 (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY								
✓			-17	DATE	9/15/67			9/15/67	9/16/67		9/16/67	9-16-67
REVISE DWG	RECORD EO	REWORK	SCRAP	T	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE WEB-DESCENT STAGE BEAM PANEL ENG. COMPT—FWD
DRAWING NO. LDW280-18429
EO NO. B3

9/23 ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153
SECTION VDI
GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

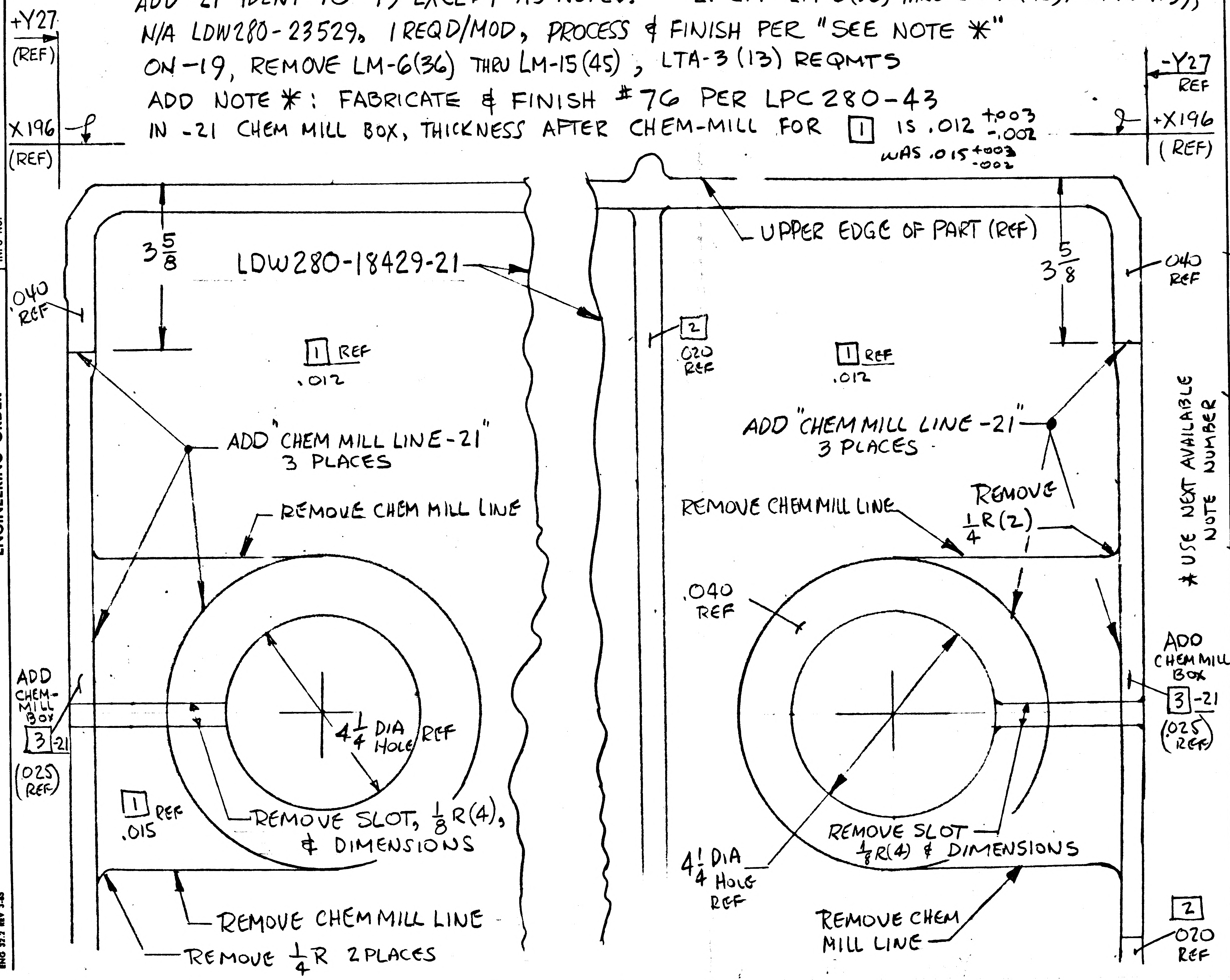
DWG. NO. LDW280-18429
EO NO. B4
CONTROL INFO NO. LDW280A9488

ADD -21 IDENT TO -19 EXCEPT AS NOTED. -21 EFF LM-6(36) THRU LM-15(45), LTA 3 (13), N/A LDW280-23529, 1 REQD/MOD, PROCESS & FINISH PER "SEE NOTE ✱"

ON -19, REMOVE LM-6(36) THRU LM-15(45), LTA-3 (13) REQMTS

ADD NOTE ✱: FABRICATE & FINISH #76 PER LPC 280-43

IN -21 CHEM MILL BOX, THICKNESS AFTER CHEM-MILL FOR 1 IS .012 $^{+.003}_{-.002}$
WAS .015 $^{+.003}_{-.002}$


+Y27 (REF)
X196 (REF)
-Y27 REF
+X196 (REF)
3 5/8
LDW280-18429-21
UPPER EDGE OF PART (REF)
3 5/8
.040 REF
.040 REF
2 .020 REF
1 REF .012
1 REF .012
ADD "CHEM MILL LINE-21" 3 PLACES
ADD "CHEM MILL LINE-21" 3 PLACES
REMOVE CHEM MILL LINE
REMOVE CHEM MILL LINE
REMOVE 1/4 R(2)
.040 REF
ADD CHEM-MILL BOX 3 -21 (.025 REF)
ADD CHEM MILL BOX 3 -21 (.025 REF)
4 1/4 DIA HOLE REF
4 1/4 DIA HOLE REF
1 REF .015
REMOVE SLOT, 1/8 R(4), & DIMENSIONS
REMOVE SLOT 1/8 R(4) & DIMENSIONS
REMOVE CHEMMILL LINE
REMOVE 1/4 R 2 PLACES
REMOVE CHEM MILL LINE
2 .020 REF

✱ USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2183 / LCD 1997 / LCD 2220 3

REASON FOR EO: REVISE WEB GAGE, FINISH, & REMOVE ELEC. HARNESS SLOT

DESCRIPTION OF EO: ADDED -21 & NOTE ✱ REMOVED LM-6(36) THRU LM-15(45), LTA-3(13) REQMTS FROM -19

MODEL	PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY						GAEC EO RELEASE
				✓	✓							JK 10/11
				REVISE DWG / RECORD EO	REWORK / SCRAP	DATE 10/11/67	SUPPORT	RELIAB. GROUP	GROUP LEADER 10/11/67	STRESS GROUP 10/11/67	LIAISON ENGRG 10/11/67	PROJ ENGRG 10/11/67
LM		LTA-3(13)				B VDI						
LM		LM-6(36) THRU LM-15(45)										

PRIORITY C

DRAWING TITLE: WEB-D/S-BEAM PANEL ENGINE COMPARTMENT-FWD VDI

DRAWING NO. LDW280-18429

EO NO. B4

ISSUED BY 10/13 J. LANG / J. STRAKOSCH X1153 10/11/67 SECTION VDI GROUP NO. 335 PL 25

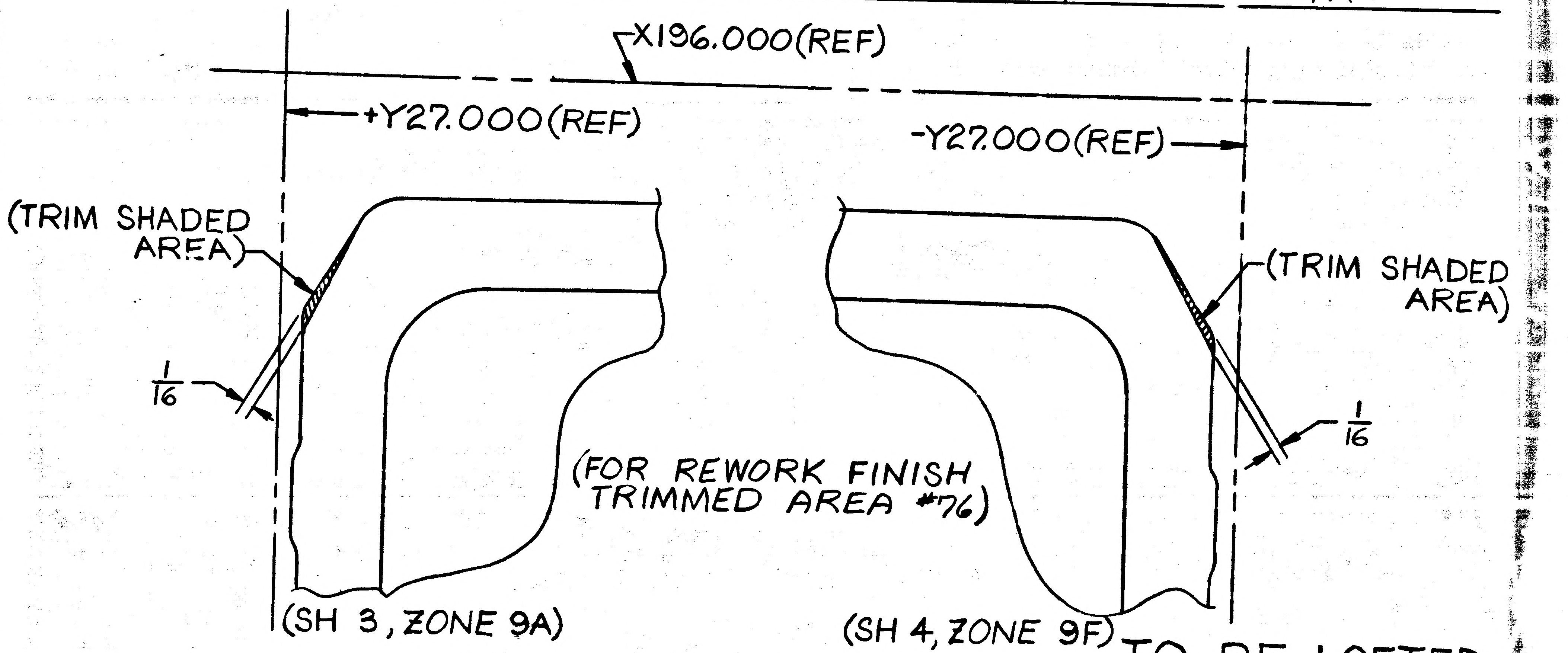
ENG 32.2 REV 3-65

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18429
EO NO.	B5
CONTROL INFO NO.	LM-2-4174


X196.000(REF)
+Y27.000(REF)
-Y27.000(REF)
(TRIM SHADED AREA)
(TRIM SHADED AREA)
1/16
1/16
(FOR REWORK FINISH TRIMMED AREA #76)
(SH 3, ZONE 9A)
(SH 4, ZONE 9F)

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE SUFFICIENT CLEARANCE BETWEEN WEB & CORNER RADIUS OF "PICTURE FRAME"	FOR -21, IN FLD/DWG REVISED CORNER TRIM (2 PLACES)	JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	
		LM-15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								02085
DATE	11/20/67				11/14/67	11/14/67	11/20/67	11-16-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~DESCENT STAGE~BEAM PANEL~ENGINE COMPARTMENT	LDW280-18429	B5

ISSUED BY LIAISON J. MALONEY 11/14/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 22.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1359
CONTROL INFO NO. LDW280B 7433

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18417 ✓	A2	SEE DWG
-18418 ✓	A5	
-18419 ✓	A3	
-18420 ✓	B2	
-18424 ✓	B4	
-18425 ✓	B4	
-18426 ✓	B4	
-18427 ✓	B4	
-18428 ✓	B4	
LDW230 -18429 ✓	C1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ LCD 3587 PKG 54 PG. 8-9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EEF FROM — *

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE				4-2-69	4/8/69		4/9/69	4/18/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1359

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[redacted] LEO 280		EO NO. 1553
CONTROL INFO NO. LDW280B 8116		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING NO *	TITLE	CHANGE NO	
✓ LDW280-18417	SEE DWG	A3	
✓ 420		B3	
✓ 424		B5	
✓ 425		B5	
✓ 429		C2	
430		C5	
431		C3	
432		C2	
LDW280-18433	SEE DWG	C3	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 34 & 35 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	(6) 8-13-69 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT REQ'D		APPROVED BY					N		Bauman
				DATE	7-29-69			7/29/69	8-2-69		8/7/69 8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1553

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18430 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW28-23530	LTA-3D (13)	1
PART NO. LDW280-18430-11		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23530	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-23530	LM-4 (34)	1
PART NO. LDW280-18430-13		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.0C	1.10	2.00	3.00	4.00	5.00	6.00		
REV	B	B	B	B	B	B	B		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO B		
		PRIM NO.	K(00	
LAST DASH NO. USED	-13	207	B 3/25/7	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	√

LCD-1997

CONTRACT NO. NAS9-1100 LINE ITEM NO. 1 DOCUMENTATION TYPE II

DRAWN BY	G. ENGEL 21AUG67	RELIABILITY	
LAYOUT BY	PLANTE		
CHECKED BY	JHC 9-18-67		
~~GRP LEADER~~			
VEHDESINT	9/1/67		
STRUCTURE	NM WJH 9/19/67	PROJ ENGR	9/1
STRUCTURE		REL GROUP	9/20/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-L.H. FWD
BEAM PANEL

SIZE	CODE IDENT NO.		
B	26512	LDW280-18430	B
SCALE	NONE	SHEET 1.00 OF 7	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~CONT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00 4.00	B5			✓		EO A1 LCD-19??	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LTA-3D LM-4—LM-15	NOT	REQ'D	G. ENGEL 8-31-67		
	2	3.00	B2			✓		LEO280-696 LCD-1997	ADDED NOTE(*), REMOVED NOTE * (X, Y, Z)	LTA-3D LM-4-LM-15	NOT	REQ'D			
	3	3.00							REF E.O. A1 & A2 ALL NOTES NOT APPLICABLE ADDED NOTES 1, 2, 3 & 4	LTA-3D LM-4—LM-15	NOT	REQ'D			
B	1	3.00					✓	LEO280-706 LCD-1997	ON -11 REVISED CHEM-MILL TOLERANCE .XXX $^{+.003}_{-.002}$ WAS .015 ± .002 & .018 ± .002	LM-4 THRU LM-15, LTA-3D	NOT	REQ'D	G. ENGEL 27-SEPT 67		
	2					✓		LCD-2011	RESTRICTED -11 TO LTA-3D	LTA-3D		✓			
	3			S		✓		CCA 668	ADDED -13 & SH 5.00 & SH 6.00	LM-4 THRU LM-15	NOT	REQ'D			

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT
A	—	9/19/67	9/19/67	
B	9/28/67	9/28/67	9/28/67	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18430	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18430-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.071 X 57 X 69	SEE	NOTE 3	
		LDW280-18430-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.071 X 57 X 69	SEE	NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM. MILLING	LSP14-26100

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18430	B

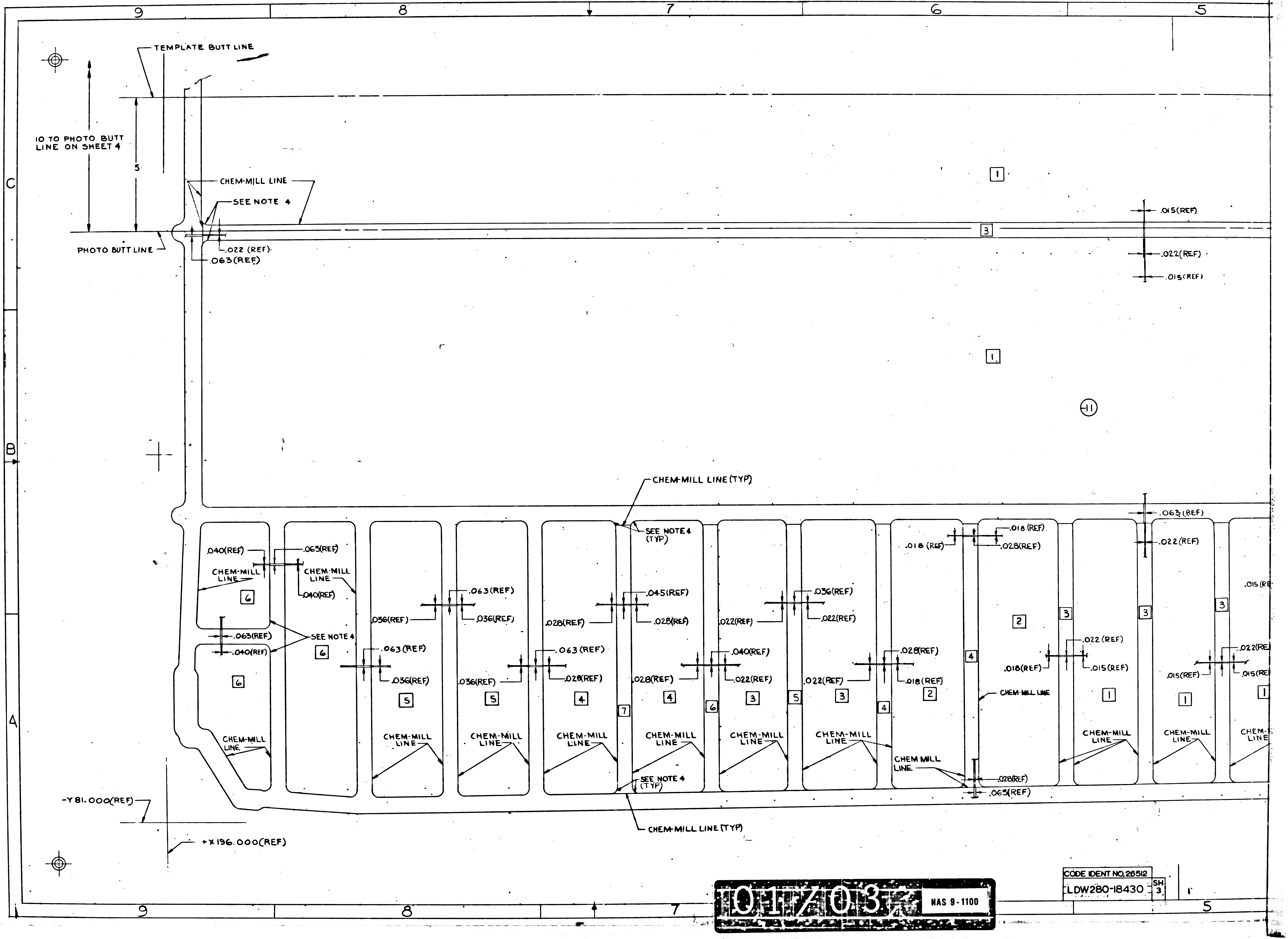
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
CHEM-MILL LINE
SEE NOTE 4
PHOTO BUTT LINE
.022 (REF)
.063 (REF)
1
3
.015 (REF)
.022 (REF)
.015 (REF)
11
CHEM-MILL LINE (TYP)
SEE NOTE 4 (TYP)
.063 (REF)
.022 (REF)
.040 (REF)
.063 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
.040 (REF)
6
.063 (REF)
.040 (REF)
SEE NOTE 4
6
6
.063 (REF)
.036 (REF)
.036 (REF)
.063 (REF)
.036 (REF)
.036 (REF)
5
5
.028 (REF)
.045 (REF)
.028 (REF)
.063 (REF)
.028 (REF)
.028 (REF)
4
4
7
.022 (REF)
.036 (REF)
.022 (REF)
.040 (REF)
.022 (REF)
.022 (REF)
3
3
6
5
4
.018 (REF)
.018 (REF)
.028 (REF)
.028 (REF)
.018 (REF)
2
2
4
.018 (REF)
.022 (REF)
.015 (REF)
.015 (REF)
.022 (REF)
.015 (REF)
.015 (REF)
1
1
1
3
3
3
CHEM-MILL LINE
CHEM MILL LINE
.028 (REF)
.063 (REF)
SEE NOTE 4 (TYP)
CHEM-MILL LINE (TYP)
-Y 81.000 (REF)
+X 196.000 (REF)

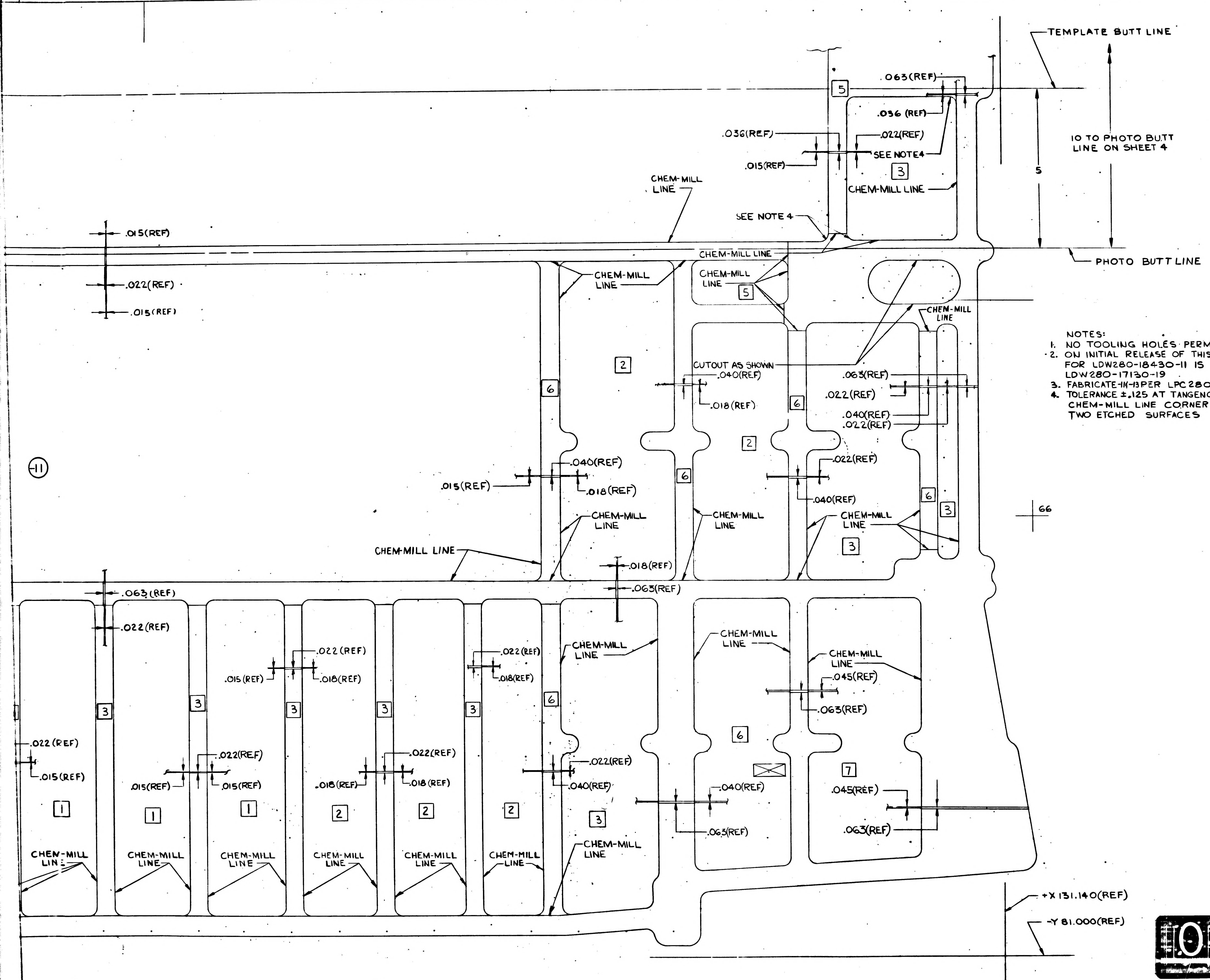
01/03

NAS 9-1100

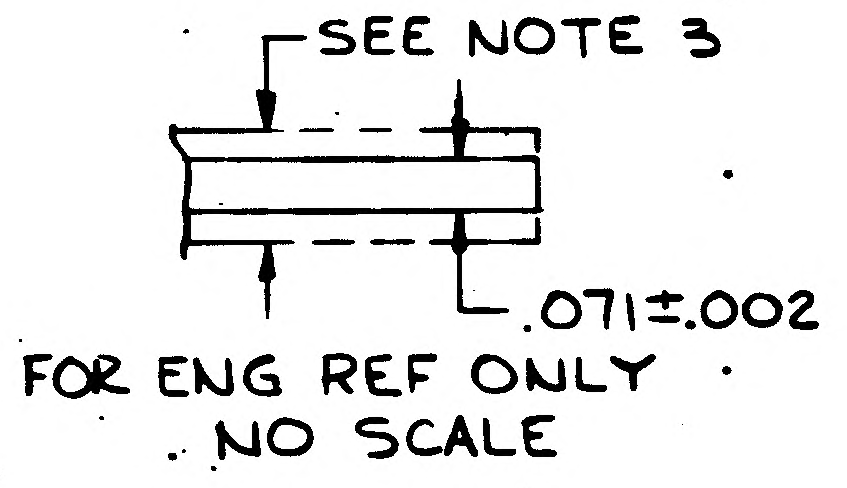
CODE IDENT NO. 26512

LDW280-18430

SH 3


5
4
3
2
1
TEMPLATE BUTT LINE
80
30
.063(REF)
5
.036 (REF)
.036(REF)
.022(REF)
SEE NOTE 4
.015(REF)
3
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
CHEM-MILL LINE
SEE NOTE 4
.015(REF)
.022(REF)
.015(REF)
CHEM-MILL LINE
PHOTO BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
5
CHEM-MILL LINE
2
CUTOUT AS SHOWN
.040(REF)
.018 (REF)
6
6
.063(REF)
.022 (REF)
.040(REF)
.022(REF)
2
.040(REF)
.018(REF)
.015(REF)
6
.022(REF)
.040(REF)
-11
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
6
3
66
3
CHEM-MILL LINE
.018(REF)
.063(REF)
.063(REF)
.022(REF)
CHEM-MILL LINE
CHEM-MILL LINE
.022(REF)
.022 (REF)
.015 (REF)
.018(REF)
.018(REF)
6
.045(REF)
.063(REF)
3
3
3
3
3
.022 (REF)
.015 (REF)
.022(REF)
.015(REF)
.015(REF)
.022(REF)
.018 (REF)
.018 (REF)
.022(REF)
.040(REF)
.040(REF)
6
7
.045(REF)
1
1
1
2
2
2
3
.063(REF)
.063(REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
+X 131.140(REF)
-Y 81.000(REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18430-11 IS SIMILAR TO LDW280-17130-19
3. FABRICATE-11(-13 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES


SEE NOTE 3
.071±.002

FOR ENG REF ONLY
NO SCALE

LDW280-18430-11

CHEM-MILL LINE TOLERANCE. ±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.048(REF)
2	$.018^{+.003}_{-.002}$	.045(REF)
3	$.022^{+.003}_{-.002}$	.041 (REF)
4	.028±.003	.035(REF)
5	$.036^{+.004}_{-.003}$	.027(REF)
6	.040±.004	.023(REF)
7	$.045^{+.005}_{-.004}$	.018(REF)

B1

02/03

NAS 9-1100

DE IDENT NO.26512
DW28-18430
SH 3

GRUMMAN AIRCRAFT
SIZE J
CODE IDENT NO. 26512
LM
MODEL OR END ITEM
SCALE FULL

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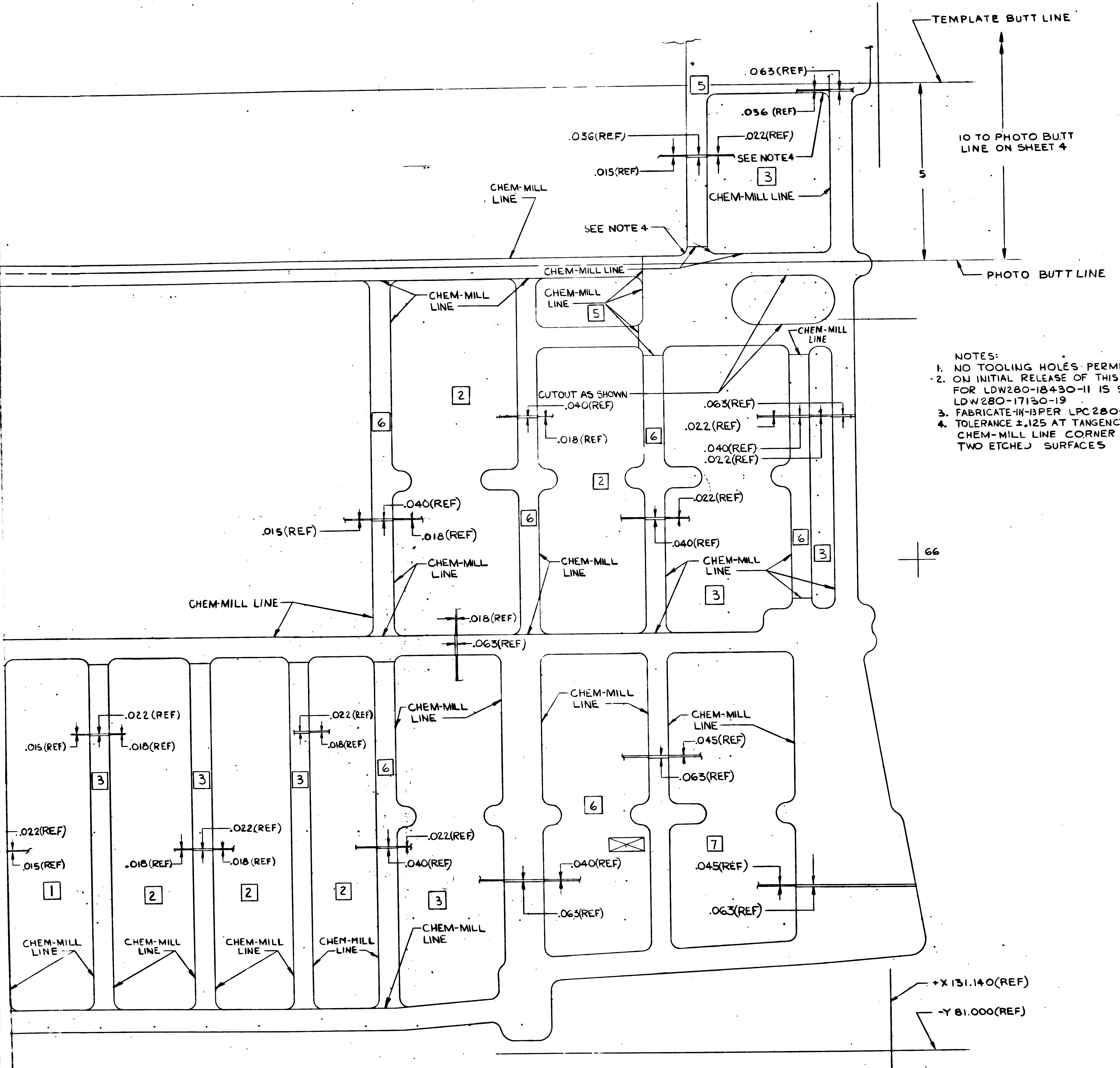
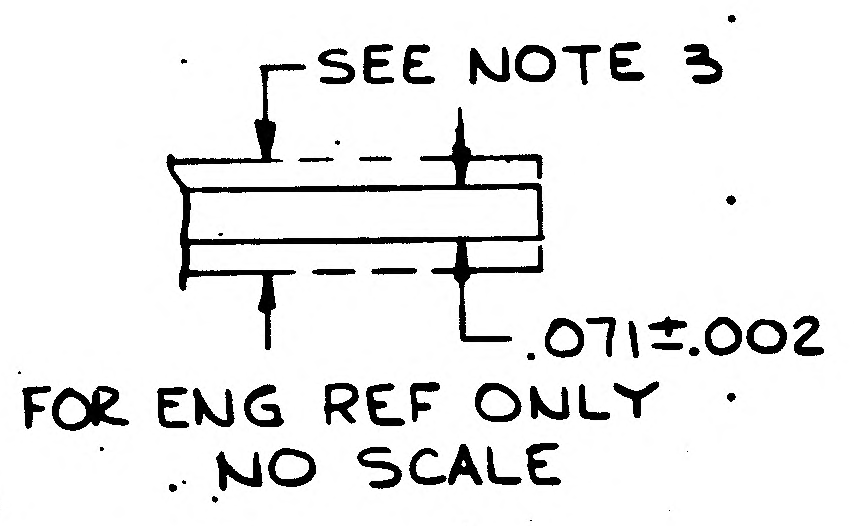

TEMPLATE BUTT LINE
.063(REF)
.036 (REF)
.036(REF)
.022(REF)
SEE NOTE 4
.015(REF)
CHEM-MILL LINE
5
3
10 TO PHOTO BUTT LINE ON SHEET 4
SEE NOTE 4
CHEM-MILL LINE
PHOTO BUTT LINE
CUTOUT AS SHOWN
.040(REF)
.018 (REF)
.063(REF)
.022 (REF)
.040(REF)
.022(REF)
.015(REF)
.040(REF)
.018(REF)
.022(REF)
.040(REF)
.018(REF)
.063(REF)
.045(REF)
.063(REF)
.015 (REF)
.022 (REF)
.018(REF)
.022(REF)
.015(REF)
.018(REF)
.022(REF)
.018 (REF)
.040(REF)
.063(REF)
.045(REF)
.063(REF)
66
1
2
6
7
+X 131.140(REF)
-Y 81.000(REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PART
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18430-11 IS SIMILAR TO LDW280-17130-19
3. FABRICATE-1K-13PER LPC280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES


SEE NOTE 3
.071±.002
FOR ENG REF ONLY
NO SCALE

80
30

LDW280-18430-11

CHEM-MILL LINE TOLERANCE.
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.048(REF)
2	$.018^{+.003}_{-.002}$	.045(REF)
3	$.022^{+.003}_{-.002}$	.041 (REF)
4	.028±.003	.035 (REF)
5	$.036^{+.004}_{-.003}$	.027(REF)
6	.040±.004	.023(REF)
7	$.045^{+.005}_{-.004}$	.018(REF)

(B1)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES	
$ DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 x 100) = 25 SQ.FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.25 SQ.FT.

03/03
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
L M	J	26512	LDW280-18430	B
	SCALE FULL		SHEET 3.00	

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K2

LDW280-18430 B

LDW280-18430B

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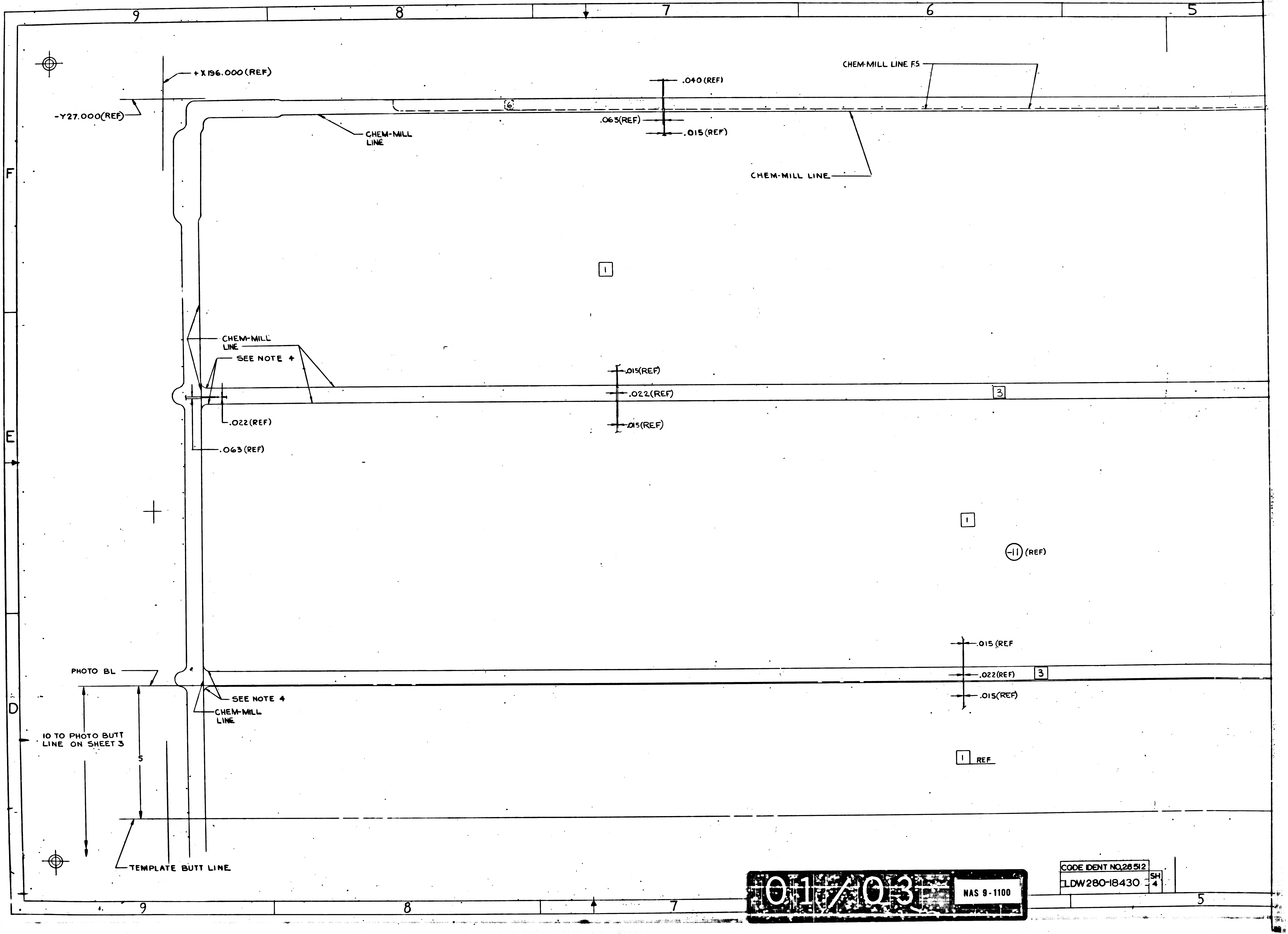
9
8
7
6
5
+X196.000(REF)
-Y27.000(REF)
CHEM-MILL LINE F.S
.040(REF)
6
.063(REF)
.015(REF)
CHEM-MILL LINE
CHEM-MILL LINE
F
1
CHEM-MILL LINE
SEE NOTE 4
.015(REF)
.022(REF)
3
.015(REF)
.022(REF)
.063(REF)
E
1
-11 (REF)
.015(REF
PHOTO BL
.022(REF)
3
.015(REF)
SEE NOTE 4
CHEM-MILL LINE
D
10 TO PHOTO BUTT LINE ON SHEET 3
5
1 REF
TEMPLATE BUTT LINE
9
8
7
5

01/03

NAS 9-1100

CODE IDENT NO.26512
LDW280-18430
SH 4

5
4
3
2
1
80
30
-Y27.000 (REF)
+X 131.140 (REF)
CHEM-MILL LINE
1 (REF)
CHEM-MILL LINE
SEE NOTE 4
.022 (REF)
.063(REF)
CHEM-MILL LINE
66
CUTOUT AS SHOWN
.063(REF)
.022(REF)
PHOTO BL
SEE NOTE 4
2
CHEM-MILL LINE (REF)
.018(REF)
.015 (REF)
SEE NOTE 4
CHEM-MILL LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
.036(REF)
.036(REF)
5
.063(REF)
CHEM-MILL LINE
TEMPLATE BUTT LINE
CHEM-MILL LINE
DE IDENT NO.26512
DW280-18430
SH 4
GRUMMAN AIRC
SIZE
CODE IDENT
J
26512
LM
MODEL OR END ITEM
SCALE FULL
5
4
3
2
1

02703 NAS 9-1100

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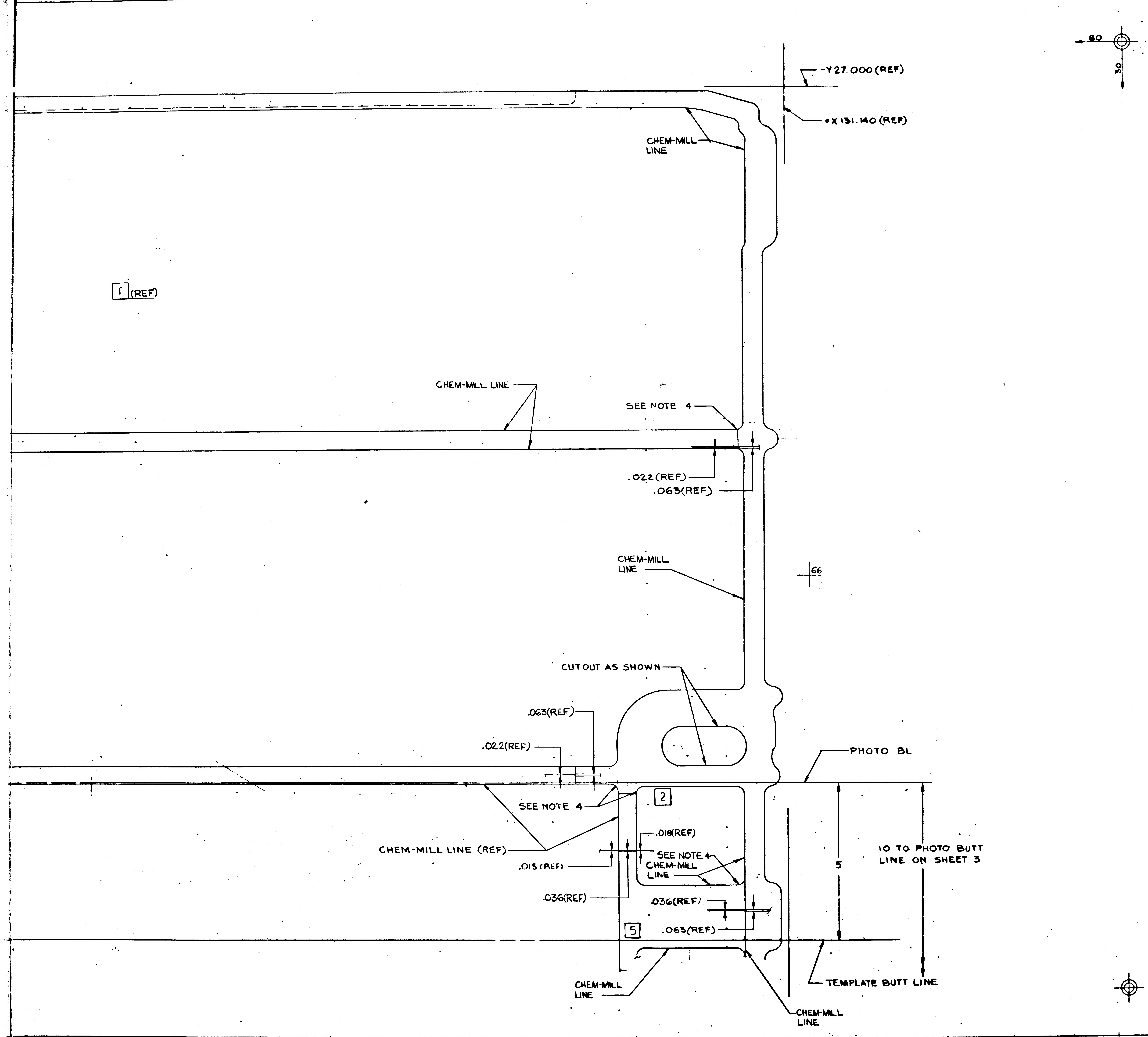

-Y27.000 (REF)
+X 131.140 (REF)
80
30
CHEM-MILL LINE
1 (REF)
CHEM-MILL LINE
SEE NOTE 4
.022 (REF)
.063 (REF)
CHEM-MILL LINE
66
CUTOUT AS SHOWN
.063(REF)
.022(REF)
PHOTO BL
SEE NOTE 4
2
CHEM-MILL LINE (REF)
.018(REF)
SEE NOTE 4
CHEM-MILL LINE
.015 (REF)
.036(REF)
.036(REF)
5
.063(REF)
10 TO PHOTO BUTT LINE ON SHEET 3
5
CHEM-MILL LINE
TEMPLATE BUTT LINE
CHEM-MILL LINE
4
3
2
1

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED ✓ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .008~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 34x 94

03/03

NAS 9-1100

LDW 280-18430 B

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18430	
	SCALE FULL		SHEET 4.00	

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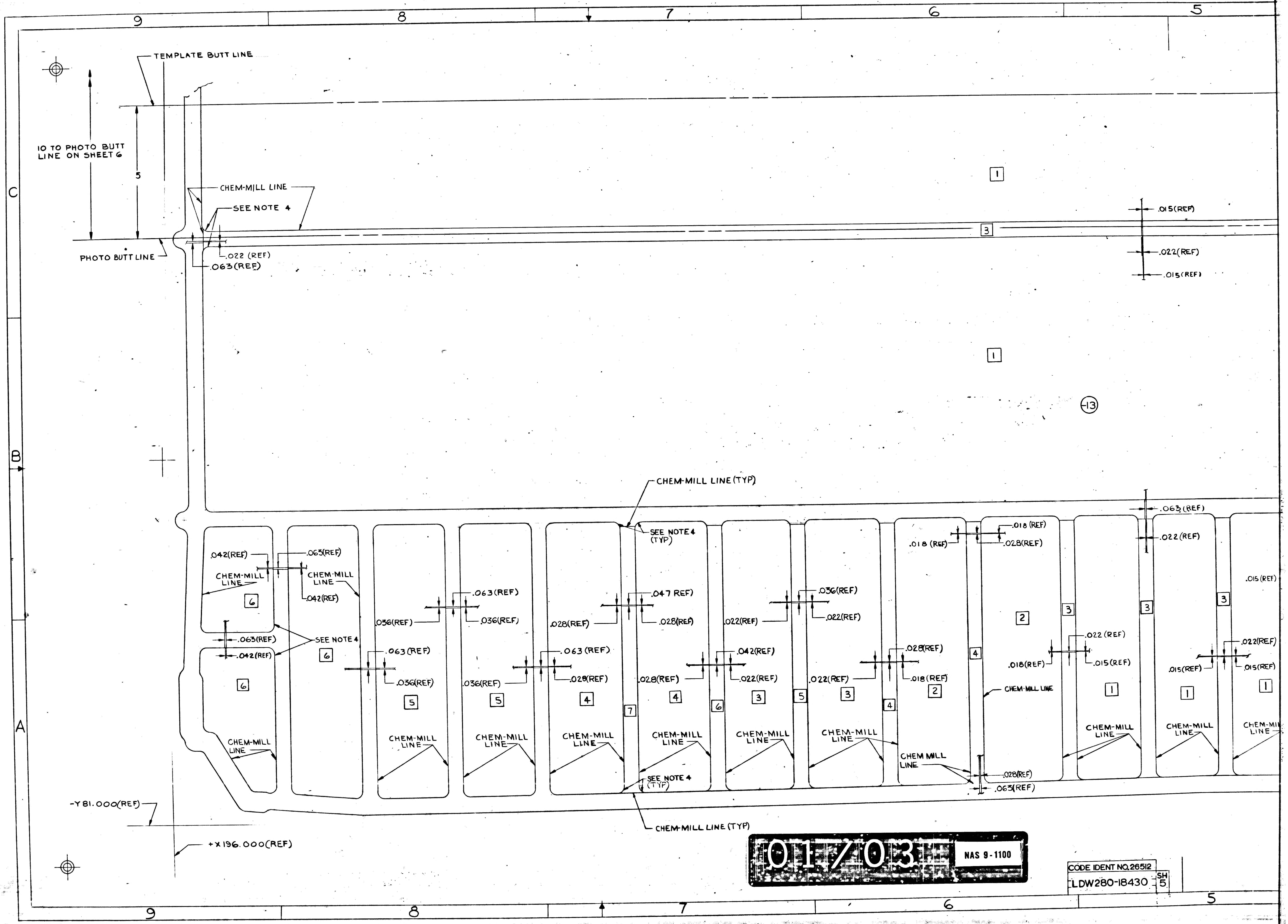
9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 6
5
CHEM-MILL LINE
SEE NOTE 4
PHOTO BUTT LINE
.022 (REF)
.063 (REF)
1
3
.015 (REF)
.022 (REF)
.015 (REF)
1
13
CHEM-MILL LINE (TYP)
SEE NOTE 4 (TYP)
.063 (REF)
.022 (REF)
.042 (REF)
.063 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
.042 (REF)
6
.063 (REF)
.036 (REF)
.036 (REF)
.047 (REF)
.028 (REF)
.028 (REF)
.036 (REF)
.022 (REF)
.022 (REF)
.018 (REF)
.018 (REF)
.028 (REF)
2
3
3
3
.015 (REF)
.063 (REF)
SEE NOTE 4
.042 (REF)
6
6
.063 (REF)
.036 (REF)
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.036 (REF)
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.063 (REF)
.028 (REF)
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7
.028 (REF)
.042 (REF)
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.022 (REF)
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.022 (REF)
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.028 (REF)
.018 (REF)
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.018 (REF)
CHEM-MILL LINE
.022 (REF)
.015 (REF)
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.015 (REF)
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.022 (REF)
.015 (REF)
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CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
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CHEM-MILL LINE
CHEM MILL LINE
.028 (REF)
.063 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4 (TYP)
CHEM-MILL LINE (TYP)
-Y 81.000 (REF)
+X 196.000 (REF)

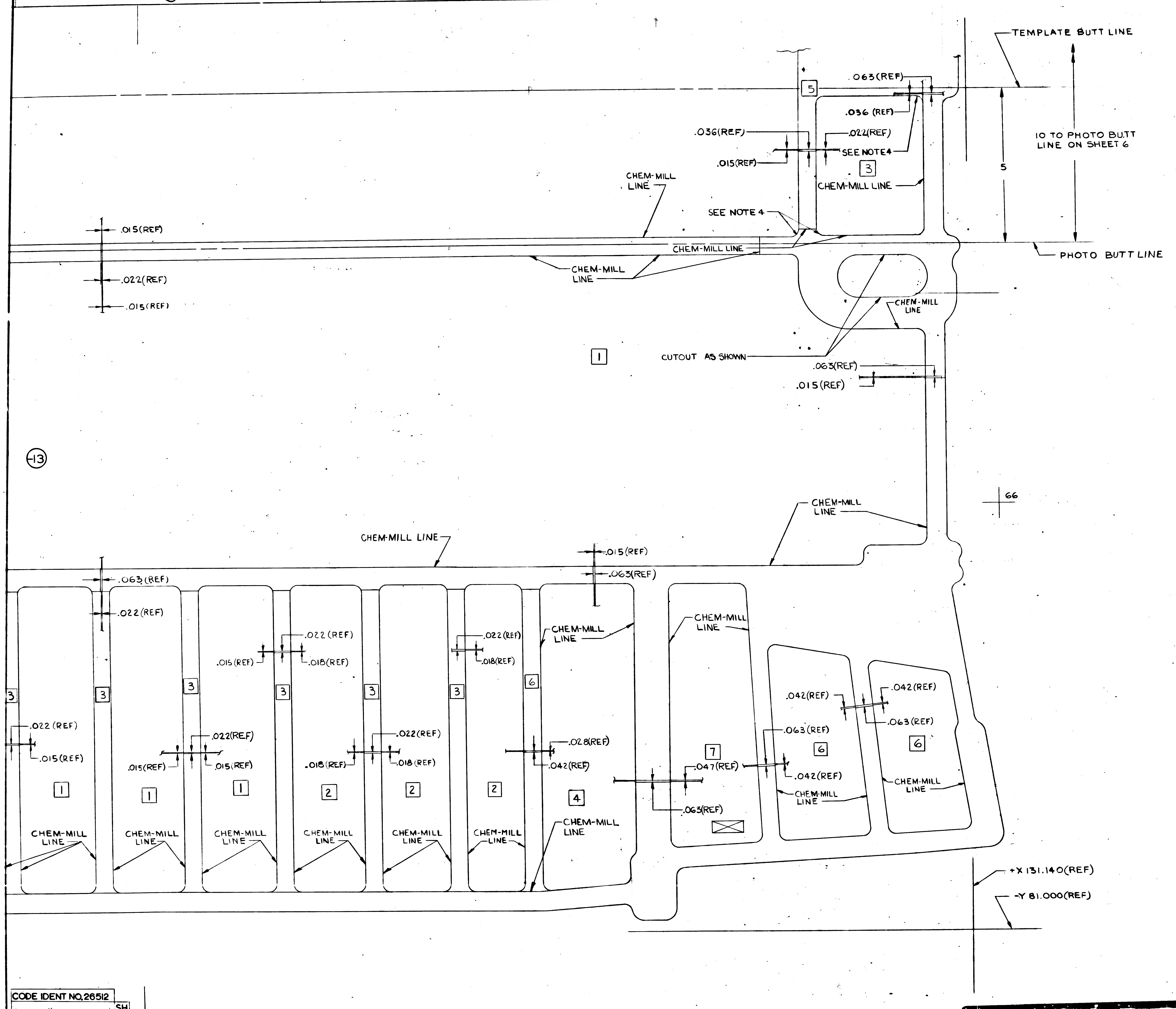
01/03

NAS 9-1100

CODE IDENT NO. 26512

LDW280-18430 SH 5

Trans & [illegible] ck
KK 4/27/67


5
4
3
2
TEMPLATE BUTT LINE
.063(REF)
5
.036 (REF)
.036(REF)
.022(REF)
SEE NOTE 4
.015(REF)
3
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 6
5
CHEM-MILL LINE
SEE NOTE 4
.015(REF)
CHEM-MILL LINE
PHOTO BUTT LINE
CHEM-MILL LINE
.022(REF)
.015(REF)
CHEM-MILL LINE
1
CUTOUT AS SHOWN
.063(REF)
.015(REF)
13
66
CHEM-MILL LINE
CHEM-MILL LINE
.015(REF)
.063(REF)
.063 (REF)
.022(REF)
.022 (REF)
.015 (REF)
.018(REF)
.022(REF)
.018(REF)
3
3
3
3
3
3
6
CHEM-MILL LINE
CHEM-MILL LINE
.042(REF)
.042(REF)
.063(REF)
.063(REF)
6
6
.022 (REF)
.015 (REF)
.022(REF)
.015(REF)
.015(REF)
.022(REF)
.018 (REF)
.018 (REF)
.028(REF)
.042(REF)
7
.047(REF)
.042(REF)
.063(REF)
1
1
1
2
2
2
4
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
+X 131.140(REF)
-Y 81.000(REF)

80
30
SEE NOTE 3
.071±.002
FOR ENG REF ONLY
NO SCALE

LDW280-18430-13

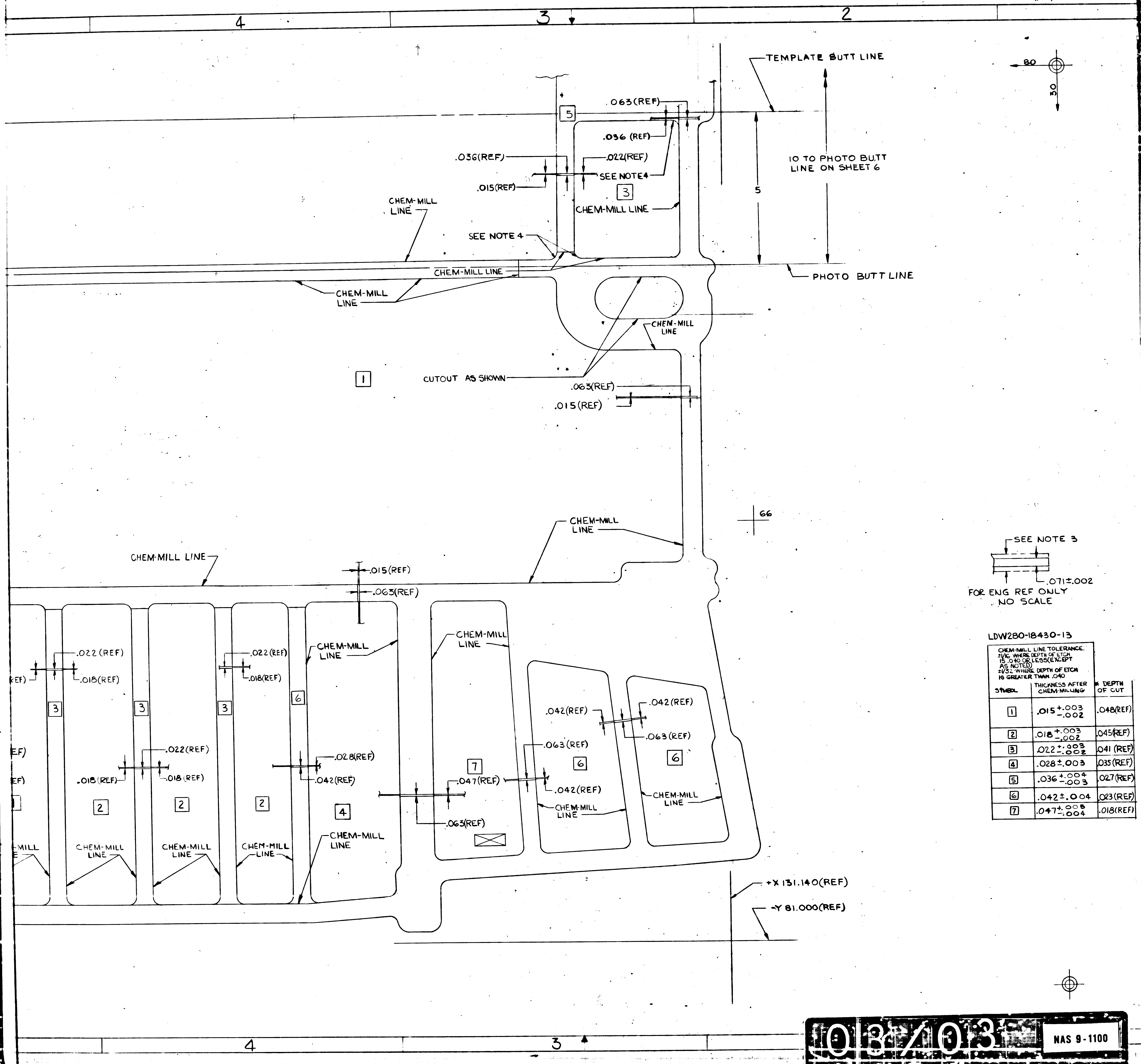
CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.048(REF)
2	$.018^{+.003}_{-.002}$	.045(REF)
3	$.022^{+.003}_{-.002}$	.041 (REF)
4	.028±.003	.035(REF)
5	$.036^{+.004}_{-.003}$	.027(REF)
6	.042±.004	.023(REF)
7	$.047^{+.005}_{-.004}$	.018(REF)

CODE IDENT NO. 26512
LDW280-18430 SH 5

02703 NAS 9-1100

LM
MODEL OR END


4
3
2
TEMPLATE BUTT LINE
.063(REF)
5
.036 (REF)
.036(REF)
.022(REF)
SEE NOTE 4
.015(REF)
3
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 6
5
CHEM-MILL LINE
SEE NOTE 4
CHEM-MILL LINE
PHOTO BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
1
CUTOUT AS SHOWN
.063(REF)
.015 (REF)
80
30
66
CHEM-MILL LINE
CHEM-MILL LINE
.015(REF)
.063(REF)
SEE NOTE 3
.071±.002
FOR ENG REF ONLY
NO SCALE
CHEM-MILL LINE
CHEM-MILL LINE
.022 (REF)
.018 (REF)
.022 (REF)
.018(REF)
3
3
3
6
.042(REF)
.063(REF)
.042 (REF)
.063(REF)
6
6
.022(REF)
.018 (REF)
.018 (REF)
.028(REF)
.042(REF)
7
.047(REF)
.042(REF)
2
2
2
4
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
.063(REF)
+X 131.140(REF)
-Y 81.000(REF)
4
3

LDW280-18430-13

CHEM-MILL LINE TOLERANCE.
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.048(REF)
2	$.018^{+.003}_{-.002}$	.045(REF)
3	$.022^{+.003}_{-.002}$	.041 (REF)
4	.028±.003	.035(REF)
5	$.036^{+.004}_{-.003}$	.027(REF)
6	.042±.004	.023(REF)
7	$.047^{+.005}_{-.004}$	.018(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 108) = 27 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6 ¾ SQ. FT.
PRINT TRIM LINE

C
B
A

LDW280-18430 B
LDW280-18430 B

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18430	B
MODEL OR END ITEM	SCALE FULL		SHEET 5.00	

(B) FR

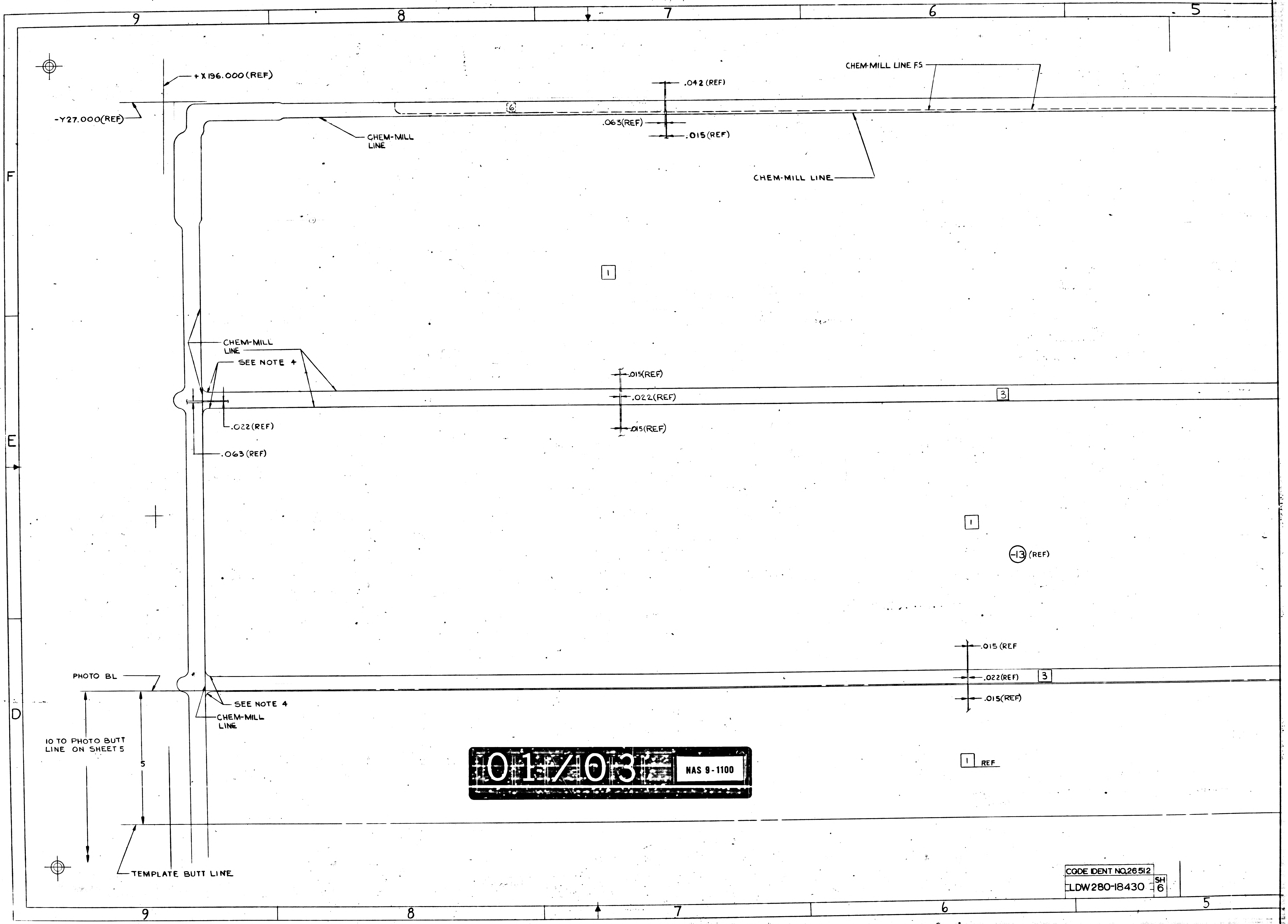
FOR PHOTO REPRODUCTION

K2

ENG 73-7 6-64

03/03

NAS 9-1100



9
8
7
6
5
F
E
D
+X196.000 (REF)
-Y27.000(REF)
CHEM-MILL LINE
.042 (REF)
.063(REF)
.015 (REF)
6
CHEM-MILL LINE F5
CHEM-MILL LINE
1
CHEM-MILL LINE
SEE NOTE 4
.015(REF)
.022(REF)
.015(REF)
3
.022 (REF)
.063 (REF)
1
-13 (REF)
.015 (REF
.022(REF)
.015(REF)
3
PHOTO BL
SEE NOTE 4
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 5
5
1 REF
TEMPLATE BUTT LINE

01/03 NAS 9-1100

CODE IDENT NO. 26512

LDW280-18430 SH 6

TRAM ℄ G-Eom
P3-L[illegible] OVERLAY

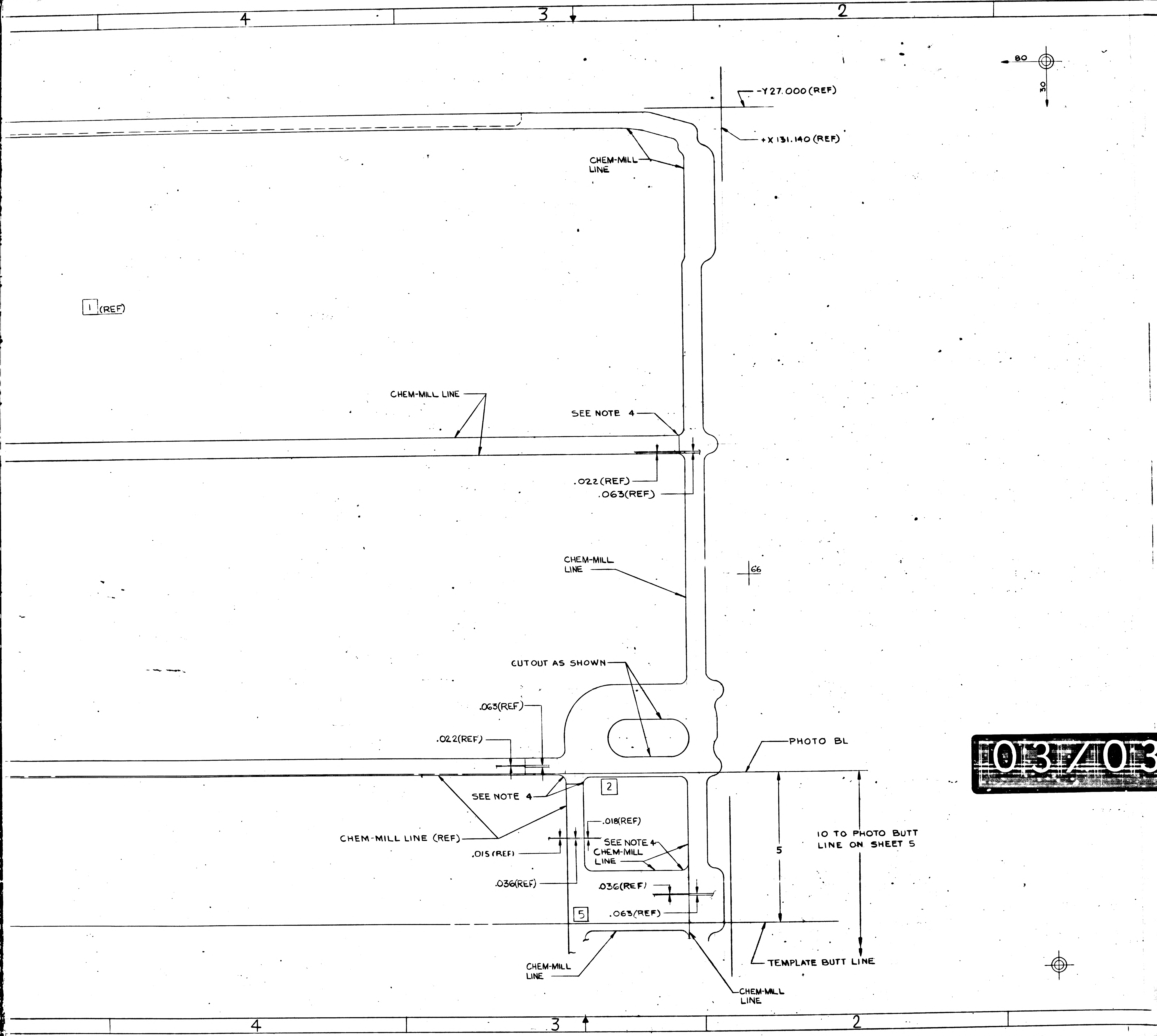
5
4
3
2
80
30
-Y27.000(REF)
+X 131.140(REF)
CHEM-MILL LINE
1 (REF)
CHEM-MILL LINE
SEE NOTE 4
.022(REF)
.063(REF)
CHEM-MILL LINE
66
CUTOUT AS SHOWN
.063(REF)
.022(REF)
PHOTO BL
SEE NOTE 4
2
.018(REF)
CHEM-MILL LINE (REF)
.015 (REF)
SEE NOTE 4
CHEM-MILL LINE
.036(REF)
.036(REF)
5
.063(REF)
5
10 TO PHOTO BUTT LINE ON SHEET 5
TEMPLATE BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
5
4
3
2

02/03 NAS 9-1100

CODE IDENT NO.26512
LDW280-18430 SH 6

GRUMMAN A
LM
MODEL OR END ITEM
SIZE J
CODE IDE 265
SCALE FULL

TRIM ℄ WEB D3 · L WEB OVERLAY


4
3
2
80
30
-Y27.000(REF)
+X 131.140 (REF)
CHEM-MILL LINE
1 (REF)
CHEM-MILL LINE
SEE NOTE 4
.022(REF)
.063(REF)
CHEM-MILL LINE
66
CUTOUT AS SHOWN
.063(REF)
.022(REF)
PHOTO BL
SEE NOTE 4
2
.018(REF)
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE (REF)
.015(REF)
.036(REF)
.036(REF)
5
.063(REF)
5
10 TO PHOTO BUTT LINE ON SHEET 5
TEMPLATE BUTT LINE
CHEM-MILL LINE
CHEM-MILL LINE
4
3
2

03/03 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 108) = 27 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6¾ SQ. FT.
PRINT TRIM LINE

F
E
LDW280-18430 B
LDW280-18430 B
D

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18430	B
	SCALE FULL		SHEET 6.00	

FOR PHOTO REPRODUCTION K2

ENG 737 6-64

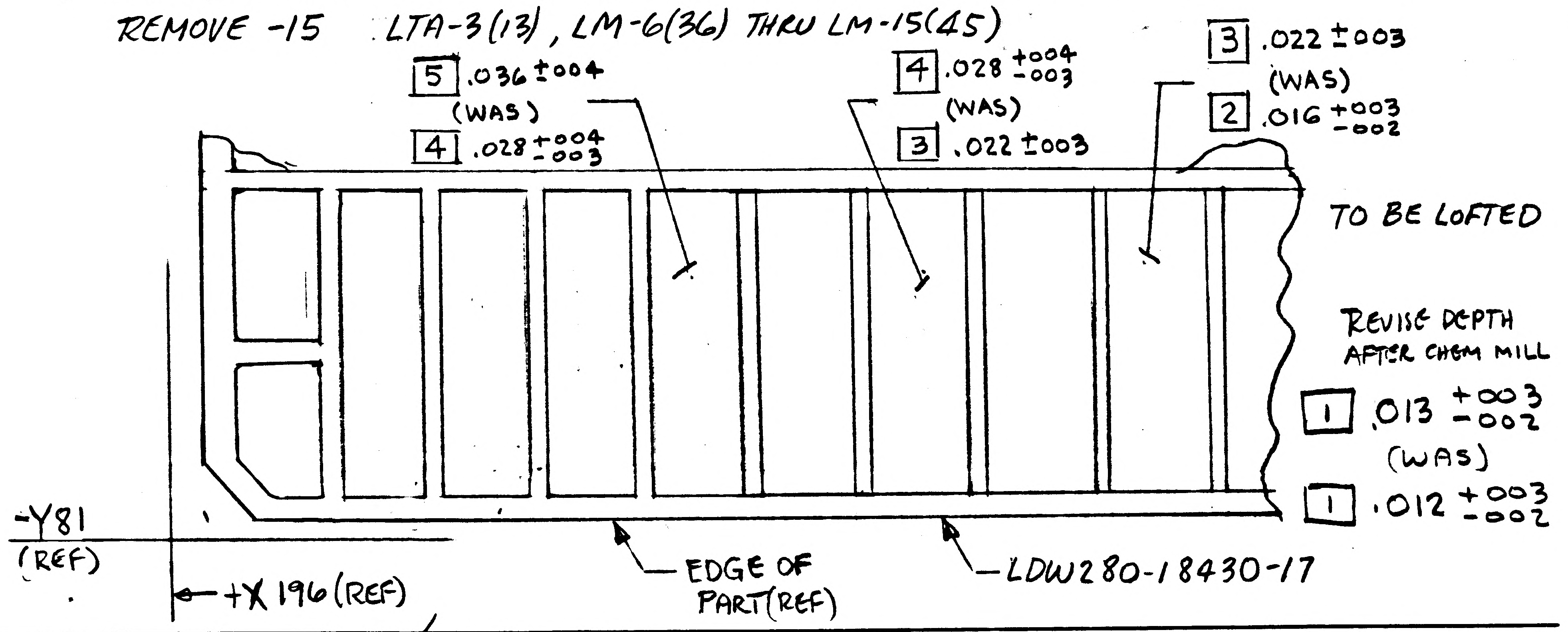
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18430 | EO NO. C2
CONTROL INFO NO. LDW280A9631

ADD -17 WEB IDENTICAL TO -15 EXCEPT AS NOTED. -17 EFF LTA 3, LM-6(36) THRU LM-15(45) N/A LDW280-23530 1 REQD/MOD I & T = 5 (REF)
REMOVE -15 LTA-3(13), LM-6(36) THRU LM-15(45)



5 .036 ±004
(WAS)
4 .028 +004 -003
4 .028 +004 -003
(WAS)
3 .022 ±003
3 .022 ±003
(WAS)
2 .016 +003 -002
TO BE LOFTED
REVISE DEPTH AFTER CHEM MILL
1 .013 +003 -002
(WAS)
1 .012 +003 -002
-Y81 (REF)
+X 196 (REF)
EDGE OF PART (REF)
LDW280-18430-17

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 2220	3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISE WEB MIN GAGE	ADDED -17 REMOVED -15	JK 10/2

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓			✓ -15	S	10/19/67 VDI			10/19/67	10/13/67		10/18/67	10-20-67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
LM		LM-6(36) THRU	LM-15(45)	C	WEB - D/S - LH FWD BEAM PANEL	LDW280-18430	C2
LM		LTA-3(13)					

10/20 ISSUED BY J. LANG / J. STRAKOSCH X1153 10/18/67 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO /376
CONTROL INF NO. LDW280B 7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431	C2	
-18432	C1	
-18433	C2	
-18434	C1	
-18435	B4	
-18436	C2	
-18437	B6	
-18438	C1	
LDW280 -18439	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

ISSUED BY 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

LEO 280 | EO NO. 1553
CONTROL INFO NO. LDW 280B 8116

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18417	SEE DWG	A3
✓ 420		B3
✓ 424		B5
✓ 425		B5
✓ 429		C2
✓ 430		C5
431		C3
432		C2
LDW 280-18433	SEE DWG	C3

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG 99 PG 34 & 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (6): SWB 8-13-69; 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY						N		Baumann	
DATE	7-29-69				7/29/69	8-2-69		8/7/69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP						~~STAFF~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1553

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18431 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54531	LM-5(35)	1
LM	LDW280-54531	LM-4(34)	1

PART NO. LDW280-18431-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54531	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
	LDW280-54531	LM-6(36)	1
LM	LDW280-23531	LTA-3(13)	1

PART NO. LDW280-18431-15

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00	4.00			
REV	B	B	B		B	B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO B

PRIM NO. 207 JK(001) M-S-11-B 9/30/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1997

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	ROSARIO 8/31/67
LAYOUT BY	PLANTE
CHECKED BY	J Kartzmar 9-18-67
GR LEADER	
VEH DES INT	9/23/67
STRUCTURES	NM W.H 9/25/67
STRUCTURES	9/25
WEIGHTS	
PROJ ENGR	9/23/67
REL GROUP	9-27-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE
RH AFT BEAM PANEL

SIZE B | CODE IDENT NO. 26512 | LDW280-18431 | B

SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00				✓		EO A1 LCD 1997	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LTA-3D(13) LM-4(34) THRU LM-15(45)	NOT	REQD	R. ROSARIO 8-19-67 JK		9-27-67
	2	1.10 & 3.00				✓		LEO280-696 LCD 1997	ADDED NOTE #(*) REMOVED NOTES #(X, Y, Z)						
	3	1.10 & 3.00							REF EO A1 & A2 ALL NOTES NOT APPLICABLE, ADDED NOTES 1, 2, 3 & 4.						
B	1	3.00				✓		LEO280-706 LCD 1997	ON -11 REVISED CHEM-MILL TOLERANCE .XXX $^{+.003}_{-.002}$ WAS .015 ± .002.	LM-4 (34) THRU LM-15 (45) LTA-3 (13)	NOT	REQD	T. MACAULAY 10-21-67 JK		10/30/67
	2	1.00, 2.00 3.00 & 4.00					✓	EO B2 LCD 2220	ADDED -13 & NOTE *, REMOVED LTA-3 (13), LM-6 (36) THRU LM-15 (45) REQMTS FROM -11.	NOTED		✓			
	3	3.00							REF EO LEO280-706, "WAS .015 ± .002" SHOULD BE "WAS .015 ± .002 & .019 ± .002".	NOTED	NOT	REQD			
	4	300							REF EO B2 NOTE * ADDED -13 TO NOTE # 3.	NOTED	NOT	REQD			
	5	1.04, 2.00 3.00 & 4.00					✓	LCD 2220	IN MOD / BLK, F/D & NOTE # 3 REMOVED -13. ADDED -15 TO MOD / BLK, F/D & NOTE # 3. CDR 11/6	LTA-3(13) LM-6(36) THRU LM-15(45)		-13			

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
B	PST 10-25-67	10/25/67	W/B 10/25/67	EB 10/26		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18431	B
SCALE NONE			SHEET 1.10

0 1

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18431-15	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.063X57X68	SEE NOTE 3		
								LDW280-18431-11	S	WEB	AL ALY SH	QQ-A-250/12	7075-T6	.063x57 x 68	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

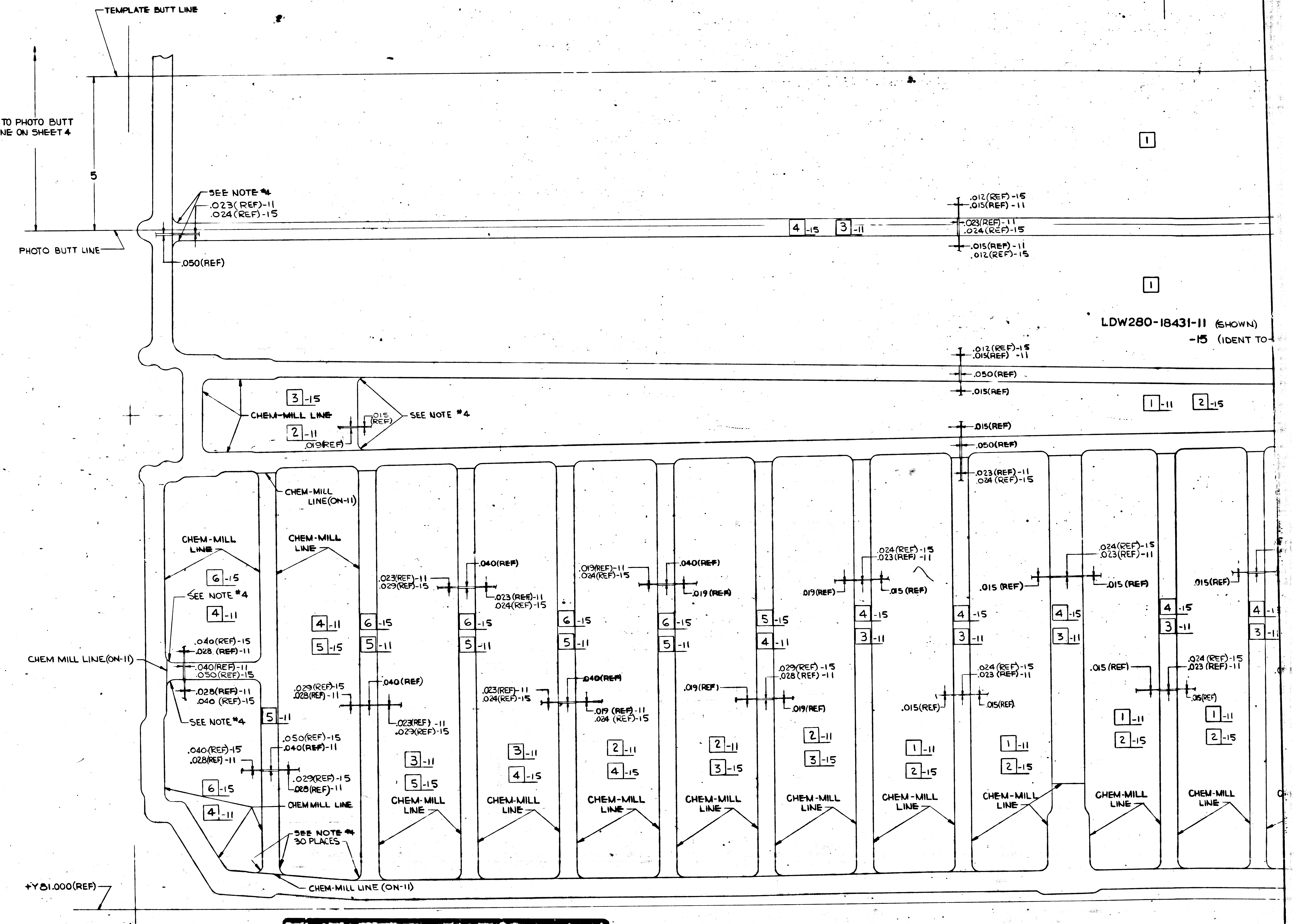
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18431
B (B)
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

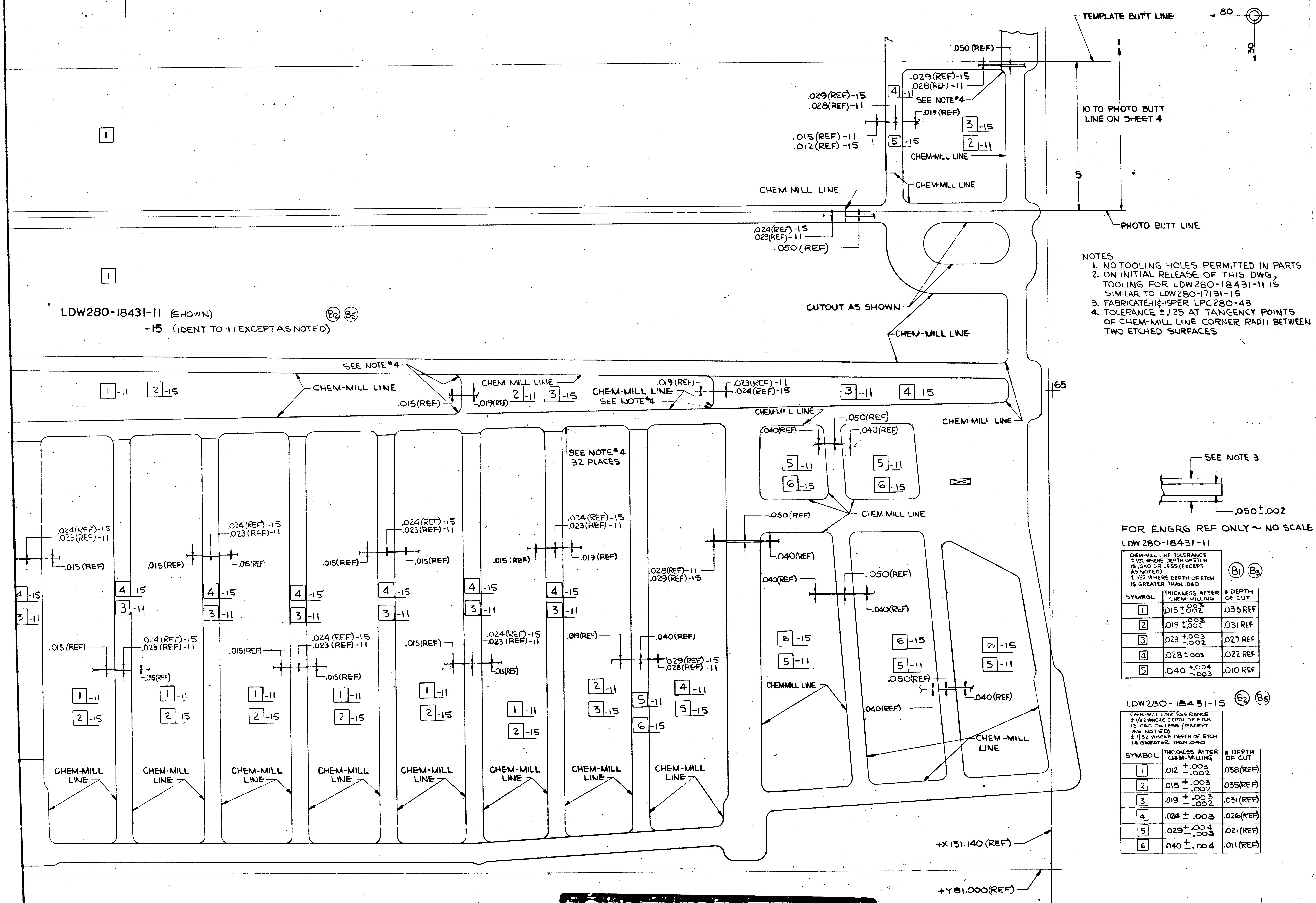


TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
SEE NOTE #4
.023(REF)-11
.024(REF)-15
.050(REF)
4 -15
3 -11
.012(REF)-15
.015(REF)-11
.023(REF)-11
.024(REF)-15
.015(REF)-11
.012(REF)-15
1
LDW280-18431-11 (SHOWN)
-15 (IDENT TO
.012(REF)-15
.015(REF)-11
.050(REF)
.015(REF)
1 -11
2 -15
.015(REF)
.050(REF)
.023(REF)-11
.024(REF)-15
3 -15
CHEM-MILL LINE
2 -11
.015 (REF)
.019(REF)
SEE NOTE #4
CHEM-MILL LINE(ON-11)
CHEM-MILL LINE
6 -15
SEE NOTE #4
4 -11
.040(REF)-15
.028 (REF)-11
CHEM MILL LINE(ON-11)
.040(REF)-11
.050(REF)-15
.028(REF)-11
.040 (REF)-15
SEE NOTE #4
.040(REF)-15
.028(REF)-11
6 -15
4 -11
4 -11
5 -15
5 -11
.050(REF)-15
.040(REF)-11
.029(REF)-15
.028(REF)-11
CHEM MILL LINE
SEE NOTE #4 30 PLACES
CHEM-MILL LINE (ON-11)
.029(REF)-15
.028(REF)-11
.040(REF)
.023(REF)-11
.029(REF)-15
.023(REF)-11
.029(REF)-15
6 -15
5 -11
3 -11
5 -15
.040(REF)
.023(REF)-11
.024(REF)-15
6 -15
5 -11
.023(REF)-11
.024(REF)-15
3 -11
4 -15
.019(REF)-11
.024(REF)-15
.019 (REF)
6 -15
5 -11
.040(REF)
.019 (REF)-11
.024 (REF)-15
2 -11
4 -15
.040(REF)
.019 (REF)
6 -15
5 -11
.019(REF)
2 -11
3 -15
.019(REF)
5 -15
4 -11
.029(REF)-15
.028 (REF)-11
.019(REF)
2 -11
3 -15
.024(REF)-15
.023(REF)-11
.015 (REF)
4 -15
3 -11
.015(REF)
1 -11
2 -15
.015 (REF)
4 -15
3 -11
.024 (REF)-15
.023 (REF)-11
.015(REF)
1 -11
2 -15
.024(REF)-15
.023(REF)-11
.015 (REF)
4 -15
3 -11
.015 (REF)
1 -11
2 -15
.015(REF)
4 -15
3 -11
.024 (REF)-15
.023 (REF)-11
.015(REF)
1 -11
2 -15
4 -1
3 -1
CHEM-MILL LINE
+Y81.000(REF)
+X196.000(REF)
9
8
7
6
5
C
B
A

01/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-18431
SH 3


TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
PHOTO BUTT LINE
80
30
5
65
.050 (REF)
.029(REF)-15
.028(REF)-11
SEE NOTE#4
.019(REF)
.015(REF)-11
.012(REF)-15
CHEM-MILL LINE
CHEM MILL LINE
.024(REF)-15
.023(REF)-11
.050 (REF)
CUTOUT AS SHOWN
LDW280-18431-11 (SHOWN)
-15 (IDENT TO-11 EXCEPT AS NOTED)
B2 B5
SEE NOTE #4
.015(REF)
.019(REF)
.023(REF)-11
.024(REF)-15
SEE NOTE#4 32 PLACES
.040(REF)
.050(REF)
.028(REF)-11
.029(REF)-15
CHEM-MILL LINE
SEE NOTE 3
.050±.002
+X131.140 (REF)
+Y81.000(REF)

FOR ENGRG REF ONLY ~ NO SCALE

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18431-11 IS SIMILAR TO LDW280-17131-15
3. FABRICATE-11 & -15 PER LPC280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES

LDW280-18431-11 (B1) (B3)

CHEM-MILL LINE TOLERANCE
± 1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.035 REF
2	$.019^{+.003}_{-.002}$	.031 REF
3	$.023^{+.003}_{-.002}$	.027 REF
4	.028±.003	.022 REF
5	$.040^{+.004}_{-.003}$	.010 REF

LDW280-18431-15 (B2) (B5)

CHEM-MILL LINE TOLERANCE
± 1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

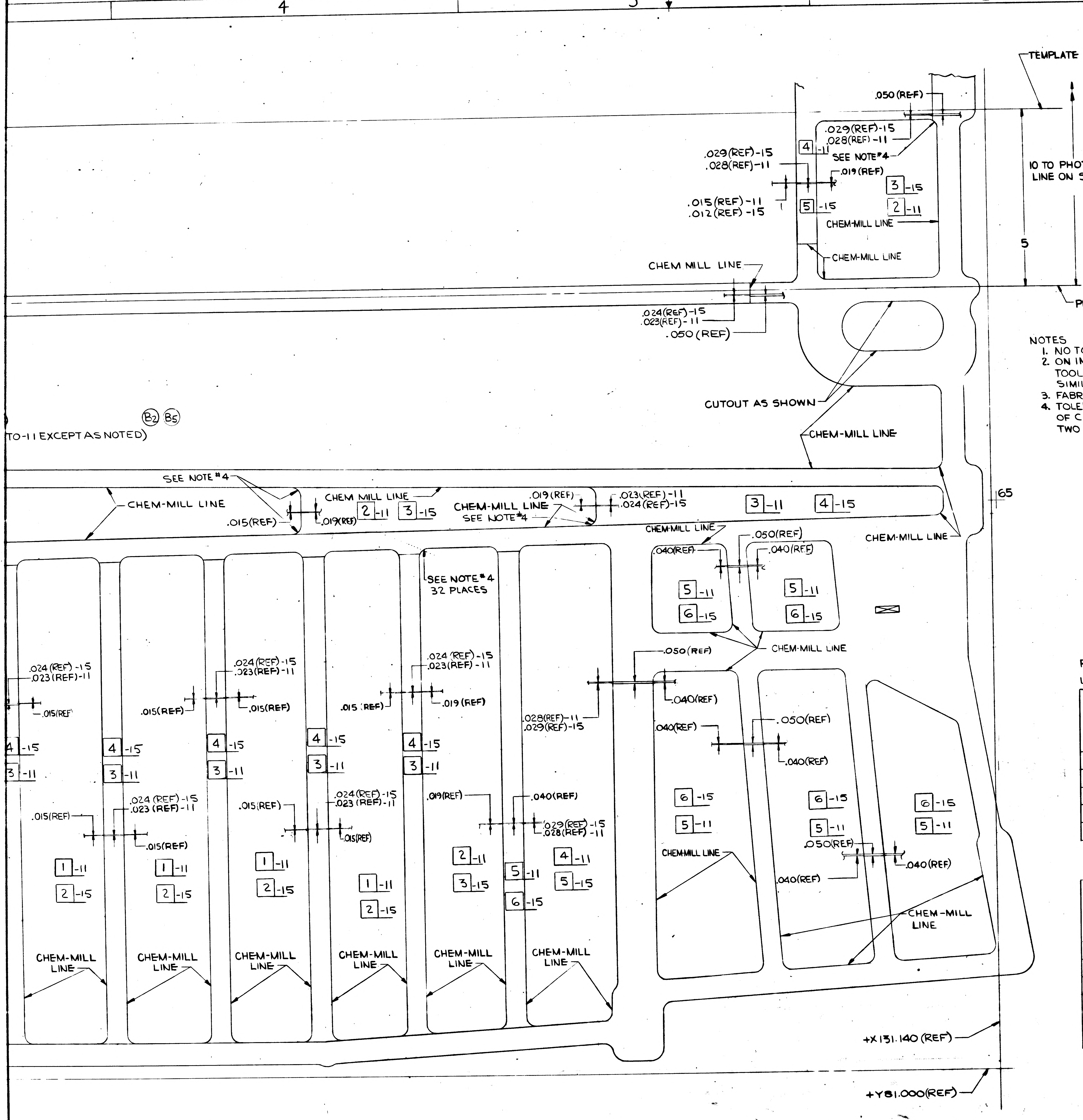
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.038(REF)
2	$.015^{+.003}_{-.002}$	.035(REF)
3	$.019^{+.003}_{-.002}$	.031(REF)
4	.024 ± .003	.026(REF)
5	$.029^{+.004}_{-.003}$	.021(REF)
6	.040 ± .004	.011(REF)

E IDENT NO. 26512
W280-18431
SH 3

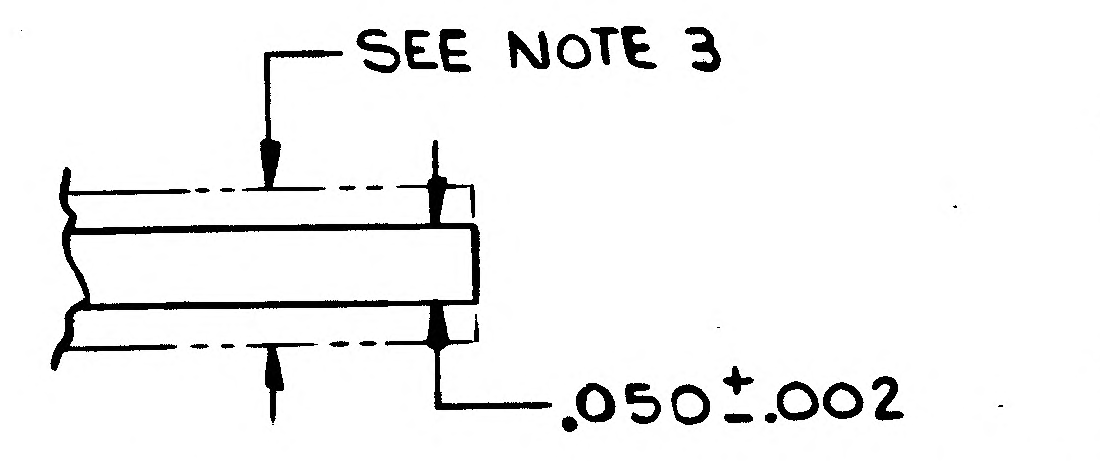
02/03
NAS 9-1100

LM
MODEL OR END I

TRAM & OVERLAY
2.3


4
3
2
TEMPLATE BUTT LINE
.80
30
.050(REF)
.029(REF)-15
.028(REF)-11
SEE NOTE #4
.019(REF)
4 -11
3 -15
5 -15
2 -11
.015(REF)-11
.012(REF)-15
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
CHEM MILL LINE
PHOTO BUTT LINE
.024(REF)-15
.023(REF)-11
.050(REF)
CUTOUT AS SHOWN
B2 B5
TO-11 EXCEPT AS NOTED)
SEE NOTE #4
CHEM-MILL LINE
.015(REF)
.019(REF)
CHEM MILL LINE
2 -11
3 -15
CHEM-MILL LINE
SEE NOTE #4
.019(REF)
.023(REF)-11
.024(REF)-15
3 -11
4 -15
65
CHEM-MILL LINE
.040(REF)
.050(REF)
5 -11
6 -15
SEE NOTE #4
32 PLACES
.024(REF)-15
.023(REF)-11
.015(REF)
.019(REF)
.028(REF)-11
.029(REF)-15
.040(REF)
4 -15
3 -11
1 -11
2 -15
5 -11
6 -15
CHEM-MILL LINE
+X131.140(REF)
+Y81.000(REF)

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18431-11 IS SIMILAR TO LDW280-17131-15
3. FABRICATE -11 & -15 PER LPC280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES


SEE NOTE 3
.050±.002

FOR ENGRG REF ONLY ~ NO SCALE

LDW280-18431-11 (B1) (B3)

CHEM-MILL LINE TOLERANCE
±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.035 REF
2	$.019^{+.003}_{-.002}$	.031 REF
3	$.023^{+.003}_{-.002}$	.027 REF
4	.028 ±.003	.022 REF
5	$.040^{+.004}_{-.003}$	.010 REF

LDW280-18431-15 (B2) (B5)

CHEM-MILL LINE TOLERANCE
±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.038(REF)
2	$.015^{+.003}_{-.002}$	.035(REF)
3	$.019^{+.003}_{-.002}$	.031(REF)
4	.024 ± .003	.026(REF)
5	$.029^{+.004}_{-.003}$	.021(REF)
6	.040 ± .004	.011(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 108) = 27.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 7.0 SQ. FT.
PRINT TRIM LINE

C
B
A

LDW280-18431 B

LDW280-18431 B

03/03

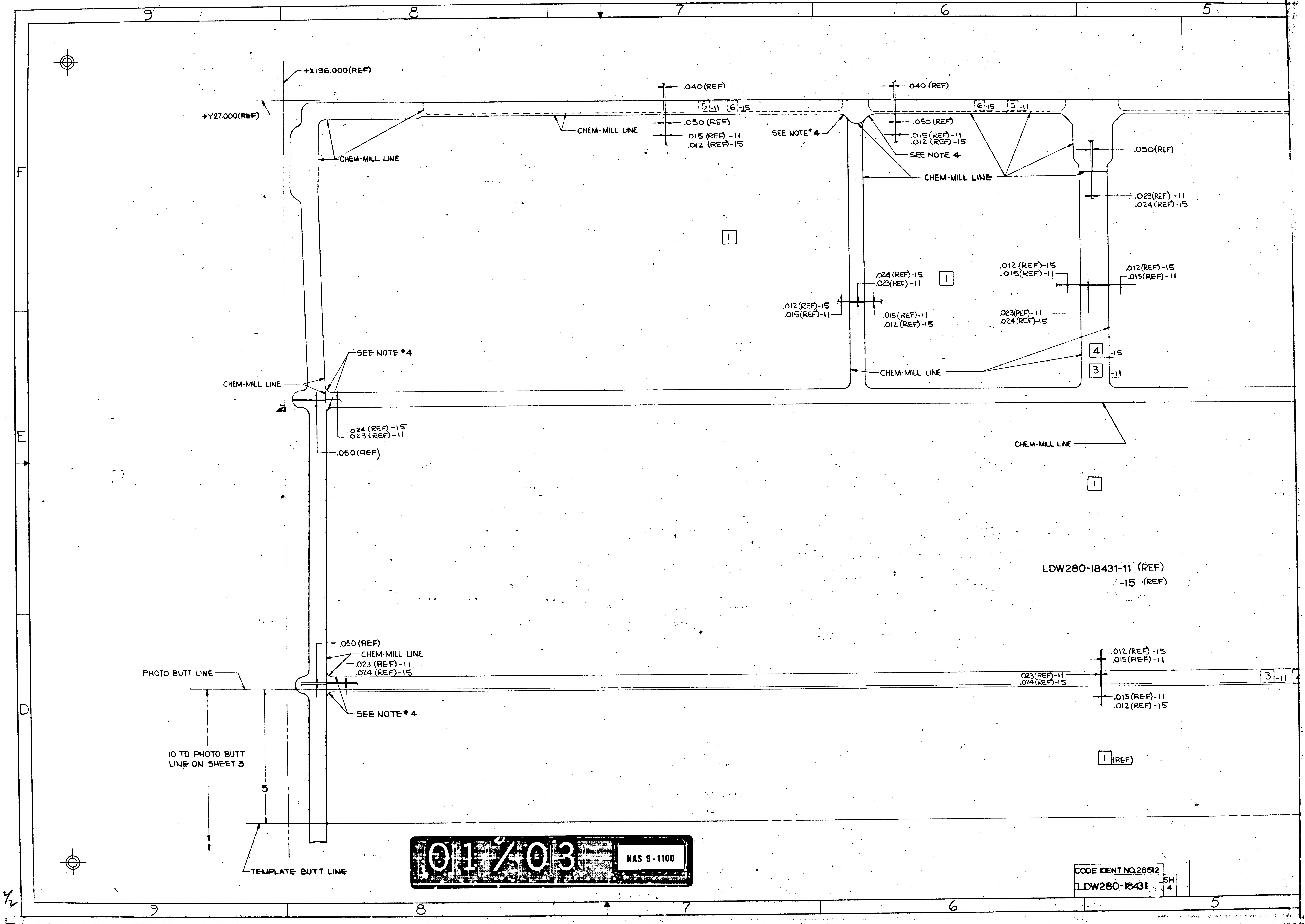
NAS 9-1100

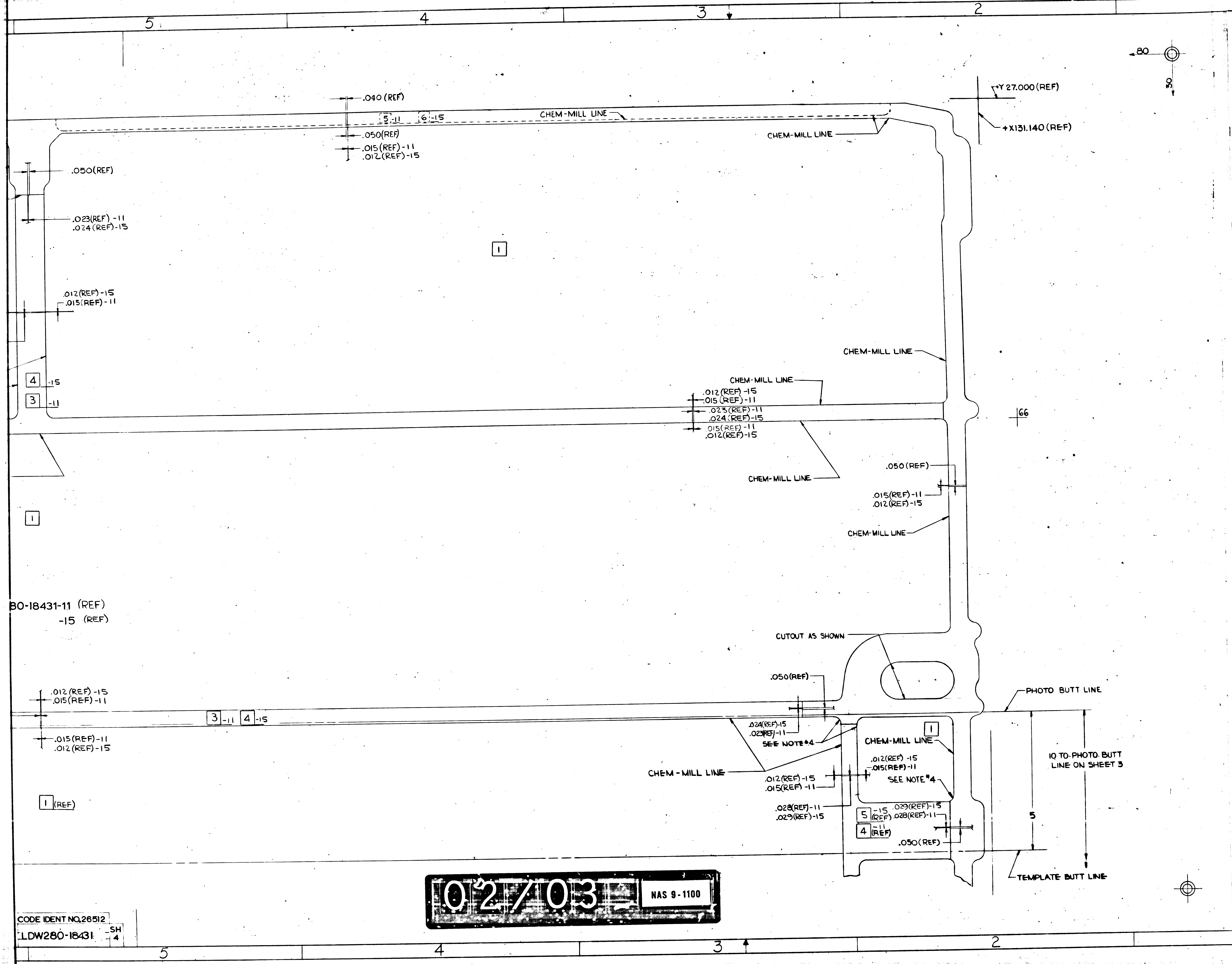
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-18431	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

(B)

FOR PHOTO REPRODUCTION
K2
ENG 73-7 6-64


+X196.000(REF)
+Y27.000(REF)
.040(REF)
5 -11
6 -15
.050 (REF)
.015 (REF) -11
.012 (REF)-15
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE*4
.040 (REF)
.050(REF)
.015(REF)-11
.012 (REF)-15
SEE NOTE 4
6 -15
5 -11
CHEM-MILL LINE
.050(REF)
.023(REF) -11
.024 (REF)-15
1
.024 (REF)-15
.023(REF)-11
1
.012 (REF)-15
.015(REF)-11
.012(REF)-15
.015(REF)-11
.012(REF)-15
.015(REF)-11
.015(REF)-11
.012 (REF)-15
.023(REF)-11
.024(REF)-15
SEE NOTE *4
CHEM-MILL LINE
CHEM-MILL LINE
4 -15
3 -11
.024 (REF)-15
.023 (REF)-11
.050(REF)
CHEM-MILL LINE
1
LDW280-18431-11 (REF)
-15 (REF)
.050 (REF)
CHEM-MILL LINE
.023 (REF)-11
.024 (REF)-15
PHOTO BUTT LINE
.012 (REF)-15
.015(REF)-11
.023(REF)-11
.024(REF)-15
3 -11
.015(REF)-11
.012(REF)-15
SEE NOTE*4
10 TO PHOTO BUTT LINE ON SHEET 3
5
1 (REF)
TEMPLATE BUTT LINE
9
8
7
6
5
F
E
D
01/03
NAS 9-1100
CODE IDENT NO. 26512
LDW280-18431
SH 4

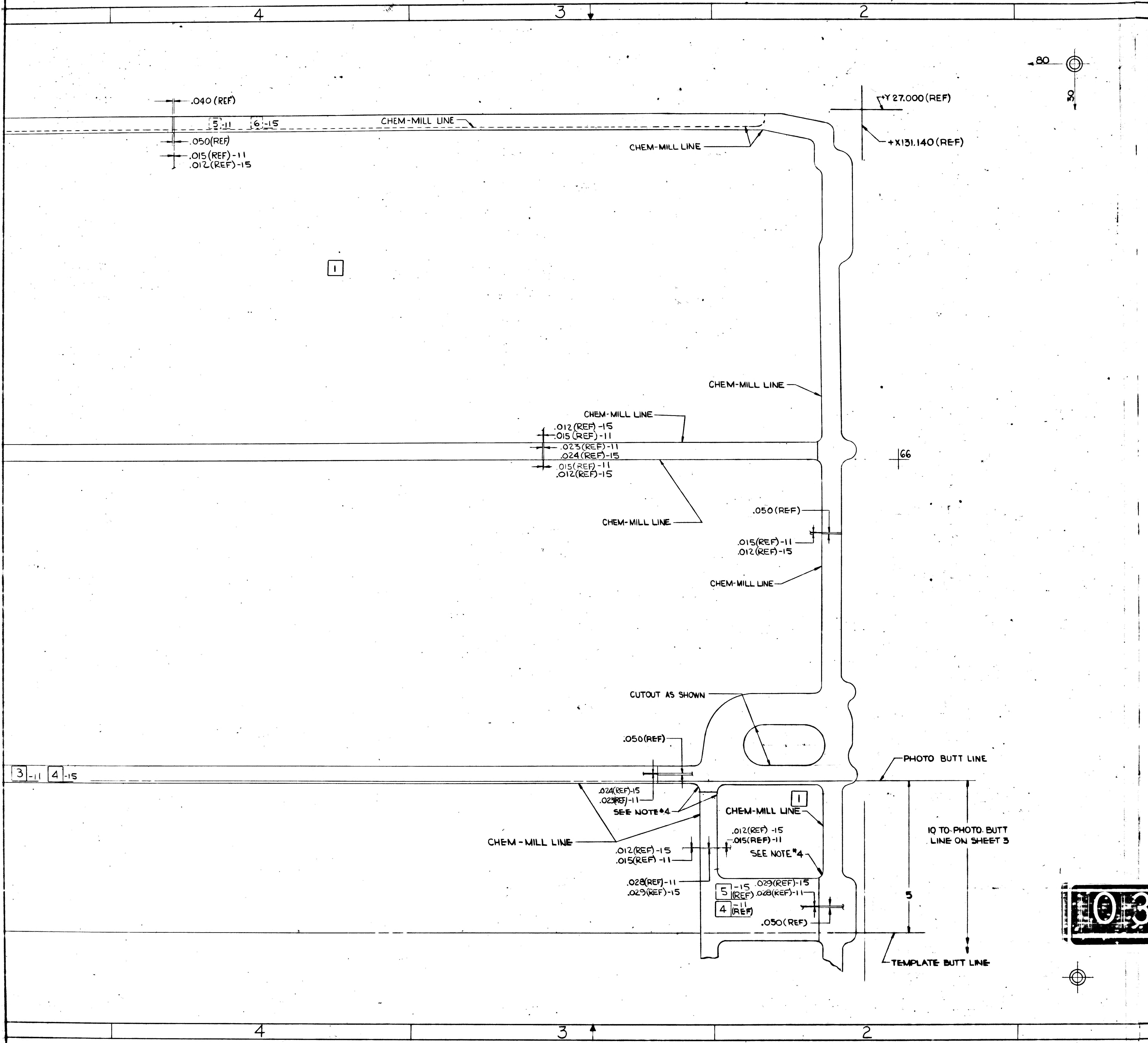

5
4
3
2
1
.040 (REF)
5 -11
6 -15
CHEM-MILL LINE
.050(REF)
.015 (REF) -11
.012 (REF) -15
CHEM-MILL LINE
Y 27.000 (REF)
+X131.140 (REF)
80
30
.050(REF)
.023(REF) -11
.024 (REF) -15
1
.012(REF) -15
.015(REF) -11
CHEM-MILL LINE
CHEM-MILL LINE
.012 (REF) -15
.015 (REF) -11
.023(REF) -11
.024 (REF) -15
.015(REF) -11
.012(REF) -15
4 -15
3 -11
66
CHEM-MILL LINE
.050 (REF)
.015(REF) -11
.012 (REF) -15
1
CHEM-MILL LINE
B0-18431-11 (REF)
-15 (REF)
CUTOUT AS SHOWN
.050(REF)
PHOTO BUTT LINE
.012 (REF) -15
.015(REF) -11
3 -11
4 -15
.024(REF) -15
.023(REF) -11
SEE NOTE #4
1
CHEM-MILL LINE
.015(REF) -11
.012 (REF) -15
.012(REF) -15
.015(REF) -11
SEE NOTE #4
CHEM - MILL LINE
.012(REF) -15
.015(REF) -11
10 TO PHOTO BUTT LINE ON SHEET 3
.028(REF) -11
.029(REF) -15
5 -15 (REF)
4 -11 (REF)
.029(REF) -15
.028(REF) -11
.050 (REF)
5
1 (REF)
TEMPLATE BUTT LINE
5
4
3
2
1

02/031

NAS 9-1100

CODE IDENT NO.26512
LDW280-18431 SH 4

GRUMMAN AIRCRAFT ENGR
LM
MODEL OR END ITEM
SIZE J
CODE IDENT NO. 26512
LD
SCALE FULL
FOR PH


4
3
2
1
.040 (REF)
5 -11
6 -15
CHEM-MILL LINE
.050(REF)
.015 (REF)-11
.012 (REF)-15
CHEM-MILL LINE
Y 27.000 (REF)
+X131.140 (REF)
80
30
1
CHEM-MILL LINE
CHEM-MILL LINE
.012 (REF) -15
.015 (REF) -11
.023 (REF) -11
.024 (REF) -15
.015 (REF) -11
.012 (REF) -15
66
CHEM-MILL LINE
.050 (REF)
.015(REF)-11
.012 (REF)-15
CHEM-MILL LINE
CUTOUT AS SHOWN
.050(REF)
PHOTO BUTT LINE
3 -11
4 -15
.024(REF)-15
.023(REF)-11
SEE NOTE #4
1
CHEM-MILL LINE
.012(REF) -15
.015(REF) -11
SEE NOTE #4
CHEM - MILL LINE
.012(REF) -15
.015(REF) -11
10 TO PHOTO BUTT LINE ON SHEET 3
.028(REF) -11
.029(REF) -15
5 -15 (REF)
4 -11 (REF)
.029(REF)-15
.028(REF)-11
5
.050 (REF)
TEMPLATE BUTT LINE
4
3
2
1

03/03 NAS 9-1100

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED ✓ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES~~

~~125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 √ · FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 34x94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 107) = 27.0 SQ. FT.
PRINT TRIM LINE

F
E
LDW280-18431 B
LDW280-18431 B
D

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18431	B
MODEL OR END ITEM	SCALE FULL		SHEET 400	

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18431 | EO NO. A1
CONTROL INFO NO. LDW280A-8789

CREATE -11 WEB IDENTICAL TO LDW280-17131 -15WEB EXCEPT AS SHOWN
NOTE 5 NOT APPLICABLE I&T = S.
EFF: N/A LDW280-23531 LTA-3D(13) (1 REQD/MOD.)
N/A LDW280-54531 LM4(34) THRU LM15(45) (1 REQ/MOD)

(ADD) (ADD)
LDW280-18431-11 WEB

LDW280-17131-15 (REF)

	CHEM-MIL LINE TOL.... (SAME) SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	1	.015 ±.002	.035 (REF)
2			
3	2	.019 ±.002	.031 (REF)
4			
5	3	.023 +.003 −.002	.027 (REF)
6	4	.028 ±.003	.022 (REF)
7	5	.040 +.004 −.003	.010 (REF)

ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18431-11 IS SIMILAR TO LDW280-17131-15

-11 IDENTICAL TO LDW280-17131-15 REV B INCLUDING EO C1, C2 (LEO 187) C3, C4 C5 (LEO 595) C6 (LEO 599) C7

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1997	5

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK | SCRAP

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JaP				NM			
DATE	8/18/67			8/18/67	8-14-67		8/21/67	8/22/67

PRIORITY: C

DRAWING TITLE: WEB - DESCENT STAGE - BEAM PANEL

DRAWING NO. LDW280-18431

EO NO. A1

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL/25

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL 997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE (*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	V.D.I.			—	NM			
DATE	8/21/67				8/23/67		8/24/67	8-28-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425	↑	B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280 -18443	↓	B1
LDW280 -18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
PRIORITY: C

APPROVED BY									
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B 7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432	C1	
-18433	C2	
-18434	C1	
-18435	B4	
-18436	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY				88F				
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280		EO NO. 1553
CONTROL INFO NO. LDW 280B 8116		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]) ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18417	SEE DWG	A3
✓ 420		B3
✓ 424		B5
✓ 425		B5
✓ 429		C2
✓ 430		C5
✓ 431		C3
432		C2
LDW 280-18433	SEE DWG	C3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 34 & 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQ'MTS

GAEC EO RELEASE (6): WB 8-13-69; JK 8/15/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	BBT						
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/7/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Lauman 8-15-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1553

8-26-69
ISSUED BY G. HANSMANN X87222 (MH) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18432 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23532	LM-5(35)	1
LM	LDW280-23532	LM-4(34)	1

PART NO. LDW280-18432-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23532	LTA-3D/R(46)	1
LM	LDW280-23532	LTA-3 (13)	1
		LM-15 (45)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM	LDW280-23532	LM-6 (36)	1

PART NO. LDW280-18432-19 GAEC SCH NO. 51-4

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00	4.00			
REV	B	B	B		B	B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO B	
LAST DASH NO. USED	-17	PRIM NO. 207	JK(001) ME-30 12/18/8 OK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1997	

CONTRACT NO. NAS9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	R. NISBET 9-4-67
LAYOUT BY	PLANTE 8-17-67
CHECKED BY	J Kertzman 9-20-67
GR ~~LDR~~	
VDI	J [illegible] 9/25/67
STRUCT	WB [illegible] 9/25/67
STRUCT	
WEIGHTS	
PROJ ENGR	[illegible] 9/23/67
REL GROUP	J Pagliaro 9-22-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-BEAM PANEL
ENG COMPT AFT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18432	B
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 3.00 & 4.00				✓		E.O. A1 LCD 1997	E.O. A1 INITIAL DWG. RELEASE PARTS MADE PER E.O	LM-4 THRU LM-15, LTA-3 D	NOT	REQD	R. NISBET 9-1-67 JK		9-27-67
	2	1.00, 1.10, 2.00 3.00 & 4.00	8A 8F			✓		E.O. A2 LCD 1997	ADDED -13, REMOVED -11			-11			
	3	1.10 & 3.00				✓		LEO 280-696 LCD 1997	ADDED NOTE * (*) REMOVED NOTES *(X, Y, Z)		NOT	REQD			
	4	1.00, 1.10, 2.00 3.00 & 4.00				✓		LEO 280-698 LCD 1997	ADDED -15, REMOVED -13			-13			
	5	1.11 & 3.00							REF E.O. A1 & LEO 280-696 (A3) ALL NOTES NOT APPLICABLE. ADDED NOTES 1, 2, 3 & 4.		NOT	REQD			
B	1	1.10, 3.00 1.00				✓		LEO280-706 LCD1997	ON -15 REVISED CHEM MILL TOLERANCE .015 $^{+.003}_{-.002}$ WAS .015 ± .002	LM-4 THRU LM-15, LTA-3	NOT	REQD	R.E. KINGSBURY 12-12-68 ES		
	2	1.10, 3.00, 4.00	8A				✓	EOB2 LCD1997	ON-15 ADDED SLOT CUTOUTS		✓				
	3	1.00, 1.10, 2.00 3.00, 4.00	9A	"B"		✓	✓	EOB3 LCD2183 LCD1997, LCD2220	ADDED -17 & NOTE 5. REMOVED LM-6 THRU LM-15, LTA-3 REQMTS FROM -15	LM-6 THRU LM-15, LTA-3		-15			
	4	1.00, 1.10, 2.00 3.00, 4.00	9A 9B 9C	"B"			✓	EOB4, LCD2220	ADDED -19, REMOVED -17 REQMTS			-17			
	5	1.10, 3.00, 4.00	9A 9F				✓	EOB5	FOR-19, IN FLD/DWG REVISED CORNER TRIM (2 PLACES)		✓				
	6	1.00, 1.10				✓		LEO280-987 LCD 3174	FOR-19 ADDED LTA-3D/R EFF	LTA-3 D/R (46)	NOT	REQD			

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY				
A	—	9/23/67	WB 9/25/67							
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18432	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18432-19	S	WEB	ALALY SH	QQ-A-250/12	7075-T6	.050x57x68	SEE NOTE 3	SEE NOTE 3	
		LDW280-18432-15	S	WEB	ALALY SH	QQ-A-250/12	7075-T6	.050X57X68	SEE NOTE 3	SEE NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

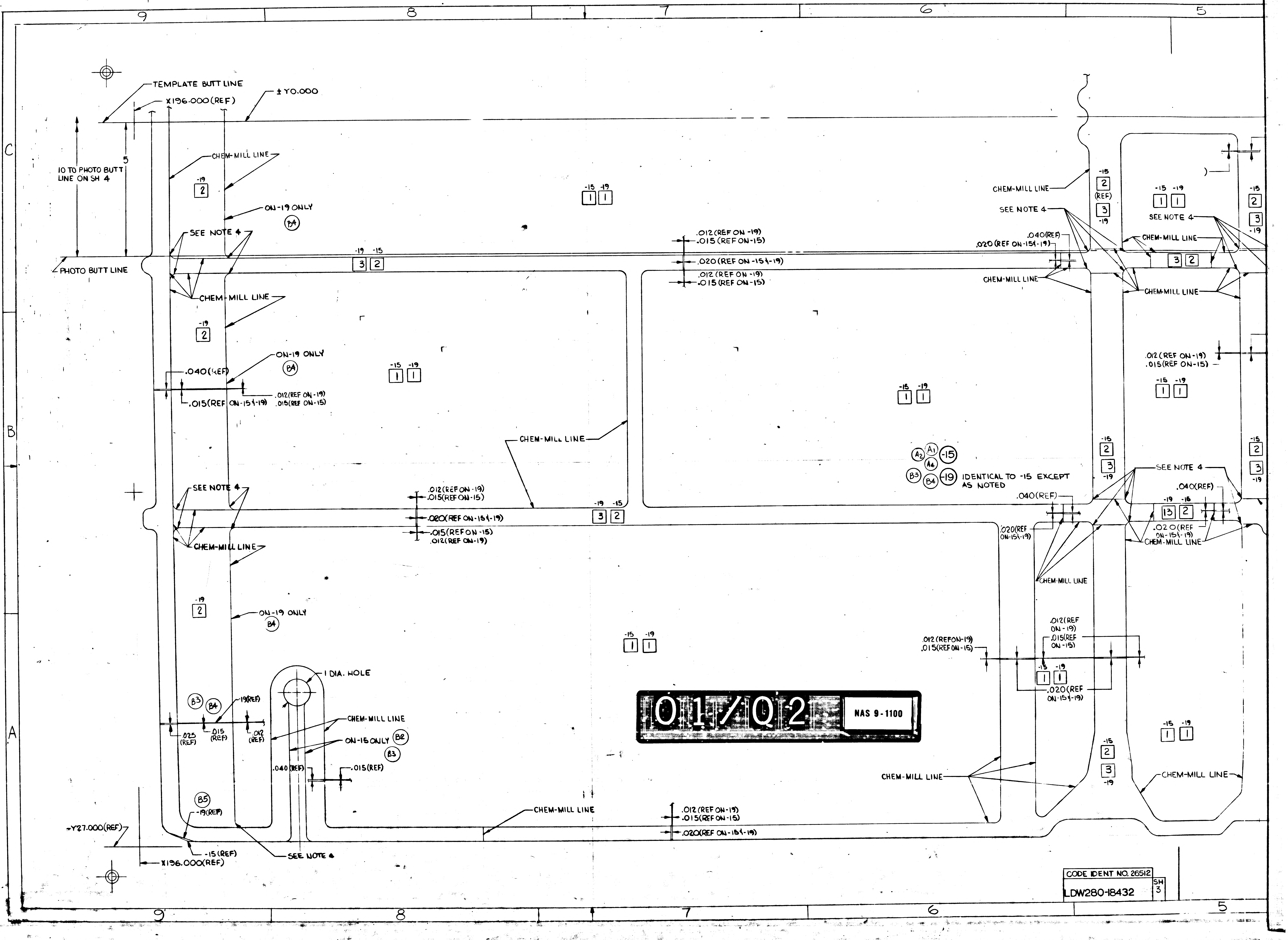
SIZE B
CODE IDENT NO. 26512
LDW280-18432
B
SCALE NONE
SHEET 2.00

⑬

ENG 77.2 7-65

01

NAS 9-1100

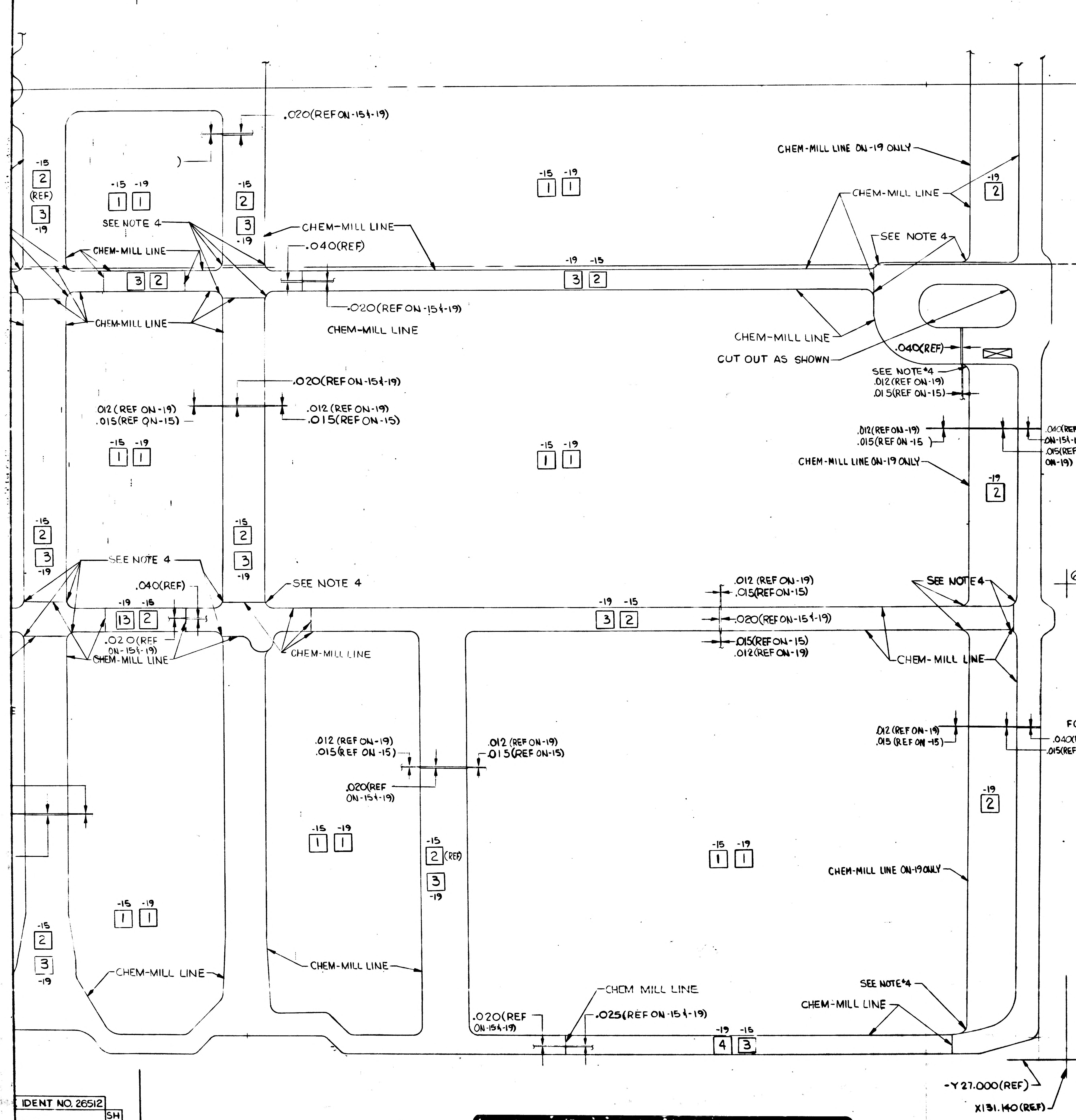

9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
X196.000(REF)
±Y0.000
10 TO PHOTO BUTT LINE ON SH 4
5
CHEM-MILL LINE
ON-19 ONLY
B4
SEE NOTE 4
PHOTO BUTT LINE
-15 -19
1 1
-19 -15
3 2
.012(REF ON-19)
.015(REF ON-15)
.020(REF ON-15&-19)
.040(REF)
.015(REF ON-15&-19)
IDENTICAL TO -15 EXCEPT AS NOTED
A1 A2 A4 -15
B3 B4 -19
(REF)
1 DIA. HOLE
ON-15 ONLY
B2
B3
B5
-19(REF)
-15(REF)
.025 (REF)
.015 (REF)
.012 (REF)
Y27.000(REF)
X196.000(REF)
13 2
01/02
NAS 9-1100

CODE IDENT NO. 26512

LDW280-18432

SH 3

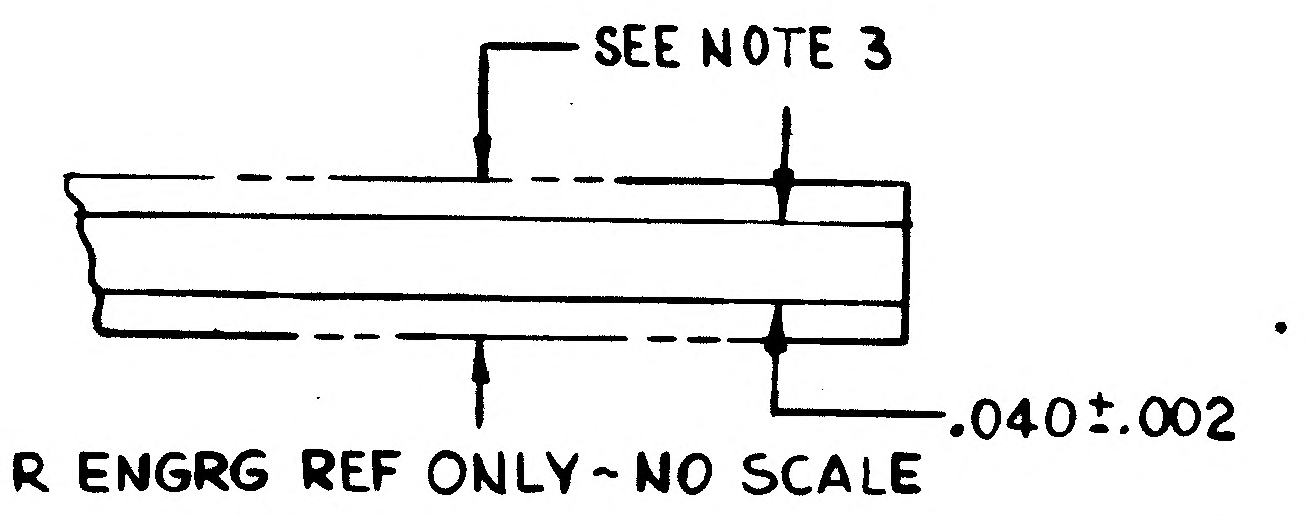
5 4 3 2 1



.020(REF ON-15&-19)
-15 -19
1 1
-15
2
(REF)
3
-19
SEE NOTE 4
CHEM-MILL LINE
.040(REF)
CHEM-MILL LINE ON-19 ONLY
CHEM-MILL LINE
SEE NOTE 4
5
10 TO PHOTO BUTT LINE ON SHEET 4
3 2
-19 -15
.020(REF ON-15&-19)
CHEM-MILL LINE
CUT OUT AS SHOWN
.040(REF)
SEE NOTE 4
.012(REF ON-19)
.015(REF ON-15)
.012 (REF ON-19)
.015(REF ON-15)
.040(REF ON-15&-19)
.015(REF ON-19)
CHEM-MILL LINE ON-19 ONLY
65
13 2
.020(REF ON-15&-19)
.015(REF ON-15)
.012(REF ON-19)
CHEM-MILL LINE
.020(REF ON-15&-19)
.025(REF ON-15&-19)
CHEM MILL LINE
SEE NOTE 4
4 3
-Y27.000(REF)
X131.140(REF)
70
30

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR LDW280-18432-15 IS SIMILAR TO LDW280-17632-13
3. FABRICATE LDW280 18432-15 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
5. FABRICATE & FINISH #76 PER LPC280-43.



SEE NOTE 3
.040±.002

FOR ENGRG REF ONLY ~ NO SCALE

LDW280-18432-15

CHEM-MILL LINE TO TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015 {}^{+.003}_{-.002}$	.025 (REF)
2	$.020 {}^{+.003}_{-.002}$	.020(REF)
3	$.025 {}^{+.003}_{-.002}$	.015(REF)

LDW280-18432-19

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.012 {}^{+.003}_{-.002}$	.028(REF)
2	$.015 {}^{+.003}_{-.002}$	.025(REF)
3	.020 ±.003	.020(REF)
4	$.025 {}^{+.004}_{-.003}$	.015(REF)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 58

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25. SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

C B A

LDW280-18432 B

LDW280-18432 B

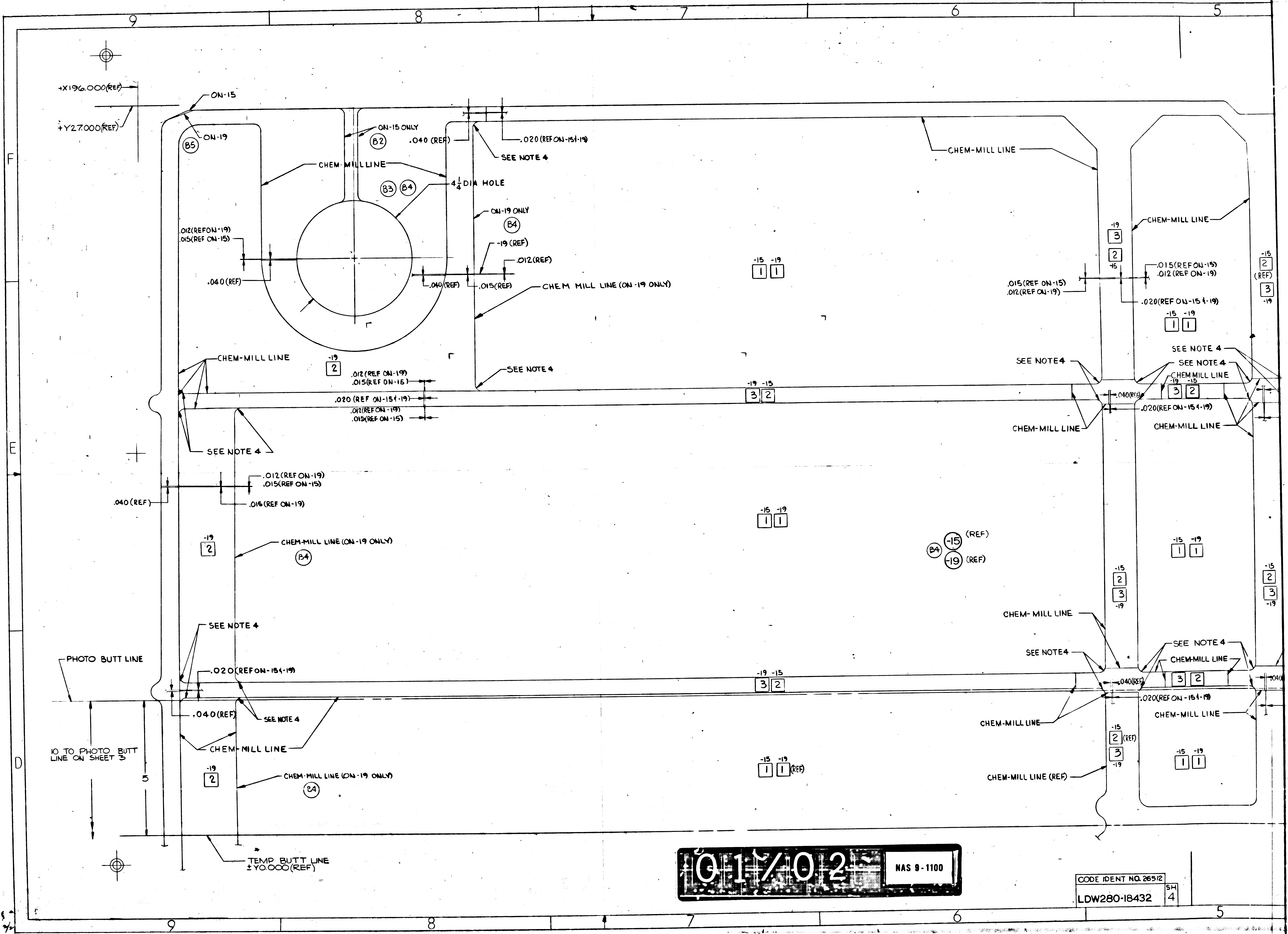
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YO				
SIZE J	CODE IDENT NO. 26512	LDW280-18432		B
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

K2

FOR PHOTO REPRODUCTION

IDENT NO. 26512
280-18432 SH 3

02/02 NAS 9-1100

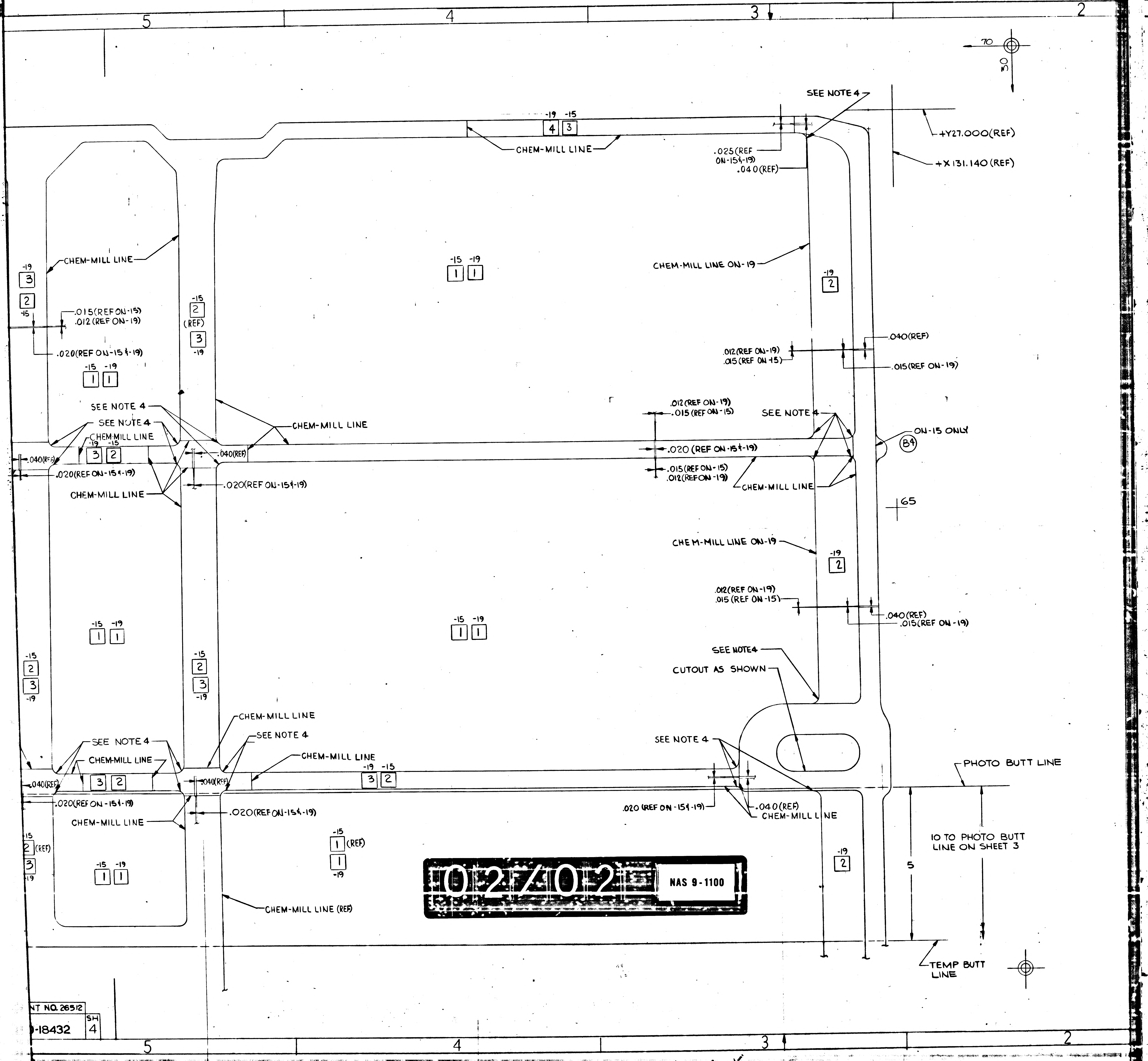

9
8
7
6
5
F
E
D
+X196.000(REF)
+Y27.000(REF)
ON-15
ON-19
B5
ON-15 ONLY
B2
.040 (REF)
.020 (REF ON-15 & -19)
SEE NOTE 4
CHEM-MILL LINE
B3
B4
4 1/4 DIA HOLE
ON-19 ONLY
B4
.012(REF ON-19)
.015(REF ON-15)
.040(REF)
-19 (REF)
.012(REF)
.040(REF)
.015(REF)
CHEM MILL LINE (ON-19 ONLY)
-15 -19
1 1
-19
3
2
-15
.015(REF ON-15)
.012(REF ON-19)
.020(REF ON-15 & -19)
-15
2
(REF)
3
-19
CHEM-MILL LINE
-19
2
.012(REF ON-19)
.015(REF ON-15)
.020 (REF ON-15 & -19)
.012(REF ON-19)
.015(REF ON-15)
-19 -15
3 2
SEE NOTE 4
SEE NOTE4
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
.040(REF)
.020(REF ON-15 & -19)
CHEM-MILL LINE
CHEM-MILL LINE
.012(REF ON-19)
.015(REF ON-15)
.040 (REF)
.015 (REF ON-19)
-19
2
CHEM-MILL LINE (ON-19 ONLY)
B4
-15 -19
1 1
B4
-15 (REF)
-19 (REF)
-15 -19
1 1
-15
2
3
-19
-15
2
3
-19
CHEM- MILL LINE
SEE NOTE 4
SEE NOTE4
CHEM-MILL LINE
PHOTO BUTT LINE
.020(REF ON-15 & -19)
-19 -15
3 2
.040(REF)
3 2
.040(REF)
.020(REF ON-15 & -19)
.040(REF)
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 3
5
-19
2
CHEM-MILL LINE (ON-19 ONLY)
B4
-15 -19
1 1 (REF)
-15
2 (REF)
3
-19
CHEM-MILL LINE (REF)
-15 -19
1 1
TEMP BUTT LINE
±Y0.000(REF)
9
8
7
6
5

01/02

NAS 9-1100

CODE IDENT NO. 26512

LDW280-18432 SH 4


5
4
3
2
70
30
SEE NOTE 4
-19 -15
4 3
CHEM-MILL LINE
+Y27.000(REF)
+X 131.140 (REF)
.025(REF ON-15 & -19)
.040(REF)
-15 -19
1 1
CHEM-MILL LINE
-19
3
2
-15
.015(REF ON-15)
.012(REF ON-19)
.020(REF ON-15 & -19)
-15
2
(REF)
3
-19
CHEM-MILL LINE ON-19
-19
2
.012(REF ON-19)
.015(REF ON-15)
.040(REF)
.015(REF ON-19)
-15 -19
1 1
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE
-19 -15
3 2
.040(REF)
.040(REF)
.020(REF ON-15 & -19)
.020(REF ON-15 & -19)
CHEM-MILL LINE
.012(REF ON-19)
.015(REF ON-15)
SEE NOTE 4
.020 (REF ON-15 & -19)
.015(REF ON-15)
.012(REF ON-19)
CHEM-MILL LINE
ON-15 ONLY
B4
65
CHEM-MILL LINE ON-19
-19
2
.012(REF ON-19)
.015 (REF ON-15)
.040(REF)
.015(REF ON-19)
-15 -19
1 1
-15 -19
1 1
-15
2
3
-19
-15
2
3
-19
SEE NOTE4
CUTOUT AS SHOWN
CHEM-MILL LINE
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE
-19 -15
3 2
-19 -15
3 2
SEE NOTE 4
PHOTO BUTT LINE
.040(REF)
.040(REF)
.020(REF ON-15 & -19)
.020(REF ON-15 & -19)
.020 (REF ON-15 & -19)
.040(REF)
CHEM-MILL LINE
CHEM-MILL LINE
-15
2 (REF)
3
-19
-15 -19
1 1
-15
1 (REF)
1
-19
CHEM-MILL LINE (REF)
-19
2
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMP BUTT LINE
NT NO. 26512
-18432
SH
4

02/02 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (34 X 99)= 25 SQ FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ. FT.

PRINT TRIM LINE

1
F
E
LDW280-18432 B
LDW280-18432 B
D

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18432	3
	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18432
EO NO. A1
CONTROL INFO NO. LDW280A-8790

CREATE -11 WEB IDENTICAL TO LDW280-17632-13 WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I/T = NONE
EFF: N/A LDW280-23532 LM4(34) THRU LEM15(45) & LTA-3D
(ADD)

-11 1 REQ/MOD

(REF) LDW280 17632-13	LDW280-18432-11 CHEM-MILL LINE TOL.... (SAME) SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1 2 3	1	.015 ±.002	.025 (REF)
4	2	.020 ±.002	.020 (REF)
5	3	.025 +.003 −.002	.015 (REF)

ADD NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18432-11 IS SIMILAR TO LDW280-17632-13

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1997

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.

DESCRIPTION OF EO: EOA1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ REWORK | SCRAP

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
APPROVED BY	WAB			—	WB		WAB	
DATE	8/16/67			—	8/17/67		8/17/67	8-18-67

PRIORITY: C
DRAWING TITLE: DESCENT ENG STAGE COMPT - WEB - BEAM PANEL AFT
DRAWING NO.: LDW280-18432
EO NO.: A1

8/18
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

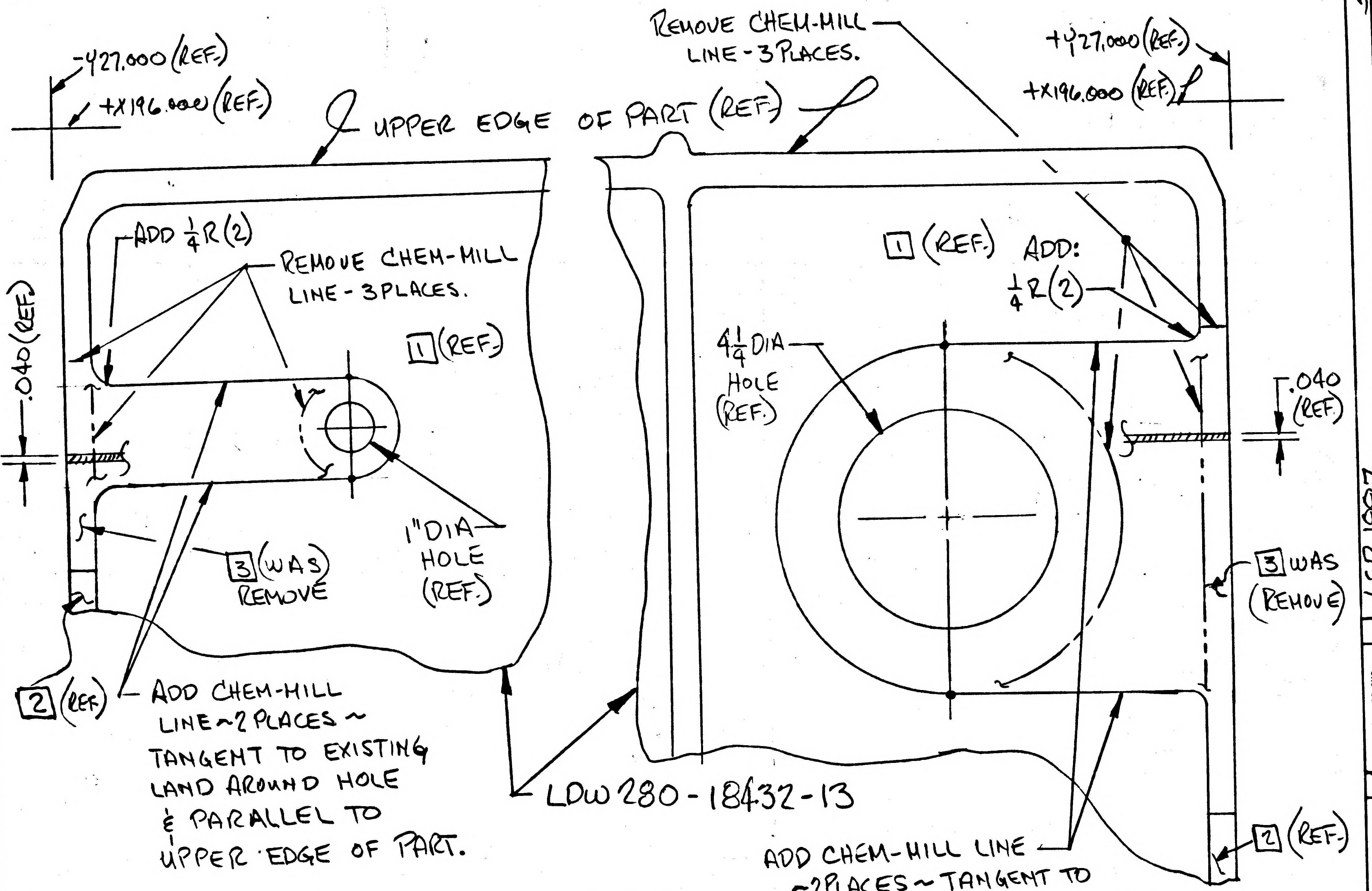
01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18432
EO NO.	A2
CONTROL INFO NO.	LDW280A 8936

A

ENG 32.2 REV 3-65



-Y27.000 (REF.)
+X196.000 (REF.)
UPPER EDGE OF PART (REF.)
REMOVE CHEM-MILL LINE - 3 PLACES.
+Y27.000 (REF.)
+X196.000 (REF.)
ADD ¼R (2)
REMOVE CHEM-MILL LINE - 3 PLACES.
1 (REF.)
.040 (REF.)
3 (WAS) REMOVE
1" DIA HOLE (REF.)
2 (REF.)
ADD CHEM-MILL LINE ~ 2 PLACES ~ TANGENT TO EXISTING LAND AROUND HOLE & PARALLEL TO UPPER EDGE OF PART.
LDW 280-18432-13
1 (REF.)
ADD: ¼R (2)
4¼ DIA HOLE (REF.)
.040 (REF.)
3 WAS (REMOVE)
2 (REF.)
ADD CHEM-MILL LINE ~ 2 PLACES ~ TANGENT TO EXISTING LAND AROUND HOLE & PARALLEL TO UPPER EDGE OF PART.

ADD -13 IDENTICAL TO -11 EXCEPT AS NOTED -13 EFF FOR LM-4 (34) THRU LM-15 (45) & LTA-3D N/A LDW 280-23532, 1 REQ'D/MOD.

REMOVE -11 REQMTS.

DETAIL SPEC REQ	
CL II ENGRG CHG	
CL I ENGRG CHG	✓
	LCD 1997 OK
GAEC C EO RELEASE	JK 8/28/67
REASON FOR EO	ADD C/M LAND FOR SPLICING TO SALVAGE WIRE RUNS.
DESCRIPTION OF EO	ADDED -13, REMOVED -11
MODEL	LM
PROCURING ACTIVITY NO.	
EFFECTIVITY – GAEC UNIT NO.	LM-4 (34) THRU LM-15 (45) LTA-3D (13)
SUB CONTR UNIT NO.	
DRAWING CHANGE REQD – REVISE DWG	✓
RECORD EO	
DISPOSITION OF PARTS – REWORK	
SCRAP	-11
APPROVED BY – SUPPORT	V.D.I. 8/24/67
RELIAB. GROUP	
GROUP LEADER	—
STRESS GROUP	WB NM 8/25/67
LIAISON ENGRG	
PROJ ENGRG	8/25/67
CONF.	8.26.67
PRIORITY	C
DRAWING TITLE	WEB ~ D.S. ~ BEAM PANEL EMG COMPT ~ AFT.
DRAWING NO.	LDW 280-18432
EO NO.	A2
ISSUED BY	8/25 Gus Hausmann X1153
SECTION	V.D.I.
GROUP NO.	280
PL	25

01 NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DEC.
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE # X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE #(*) REMOVED NOTE # (X, Y, Z)

GAEC EO RELEASE: JK 8/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LMA(34) THRU	
		LM15(45)	8LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				—	NM			
DATE	8/21/67				8/23/67		8/24/67	8-28-67
	V.D.I.							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWGS ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASSY, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB ~ D.S. ~ END BLKD ~ R.H. END BHD
✓	" -18425	-11	-13	A3	" ~ L.H. END BHD
✓	" -18426	-11	-13	A3	" ~ FWD END BHD
✓	" -18427	-11	-13	A3	" ~ AFT END BHD
✓	" -18429	-15	-17	A5	" D.S. ~ BEAM PANEL ~ FWD ENG. COMPT.
✓	" -18432	-13	-15	A4	" ~ AFT ENG COMPT.
	" -18435	-11	-13	A3	" ~ R.H ENG COMPT
	" -18438	-15	-17	A6	" ~ L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 ok 5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED-*, REMOVED-**.

Ⓡ GAEC EO RELEASE: VK 8/30/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVIS. DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	JAP			Z	NM			JP
DATE	8/21/67				8/23/67		8/24/67	8/30/67

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 698

8/25 ISSUED BY PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LEO 280	EO NO. 706
CONTROL INFO NO. LDW280A9086	

*ON ALL DASH NUMBERS OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425		B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE: C JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK, SCRAP)

	APPROVED BY	DATE
9/7/67 VDI		9/7/67
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	JAS	9/7/67
STRESS GROUP		9-7-67
LIAISON ENGRG		
PROJ ENGRG		9/7/67
	AC	9-7-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

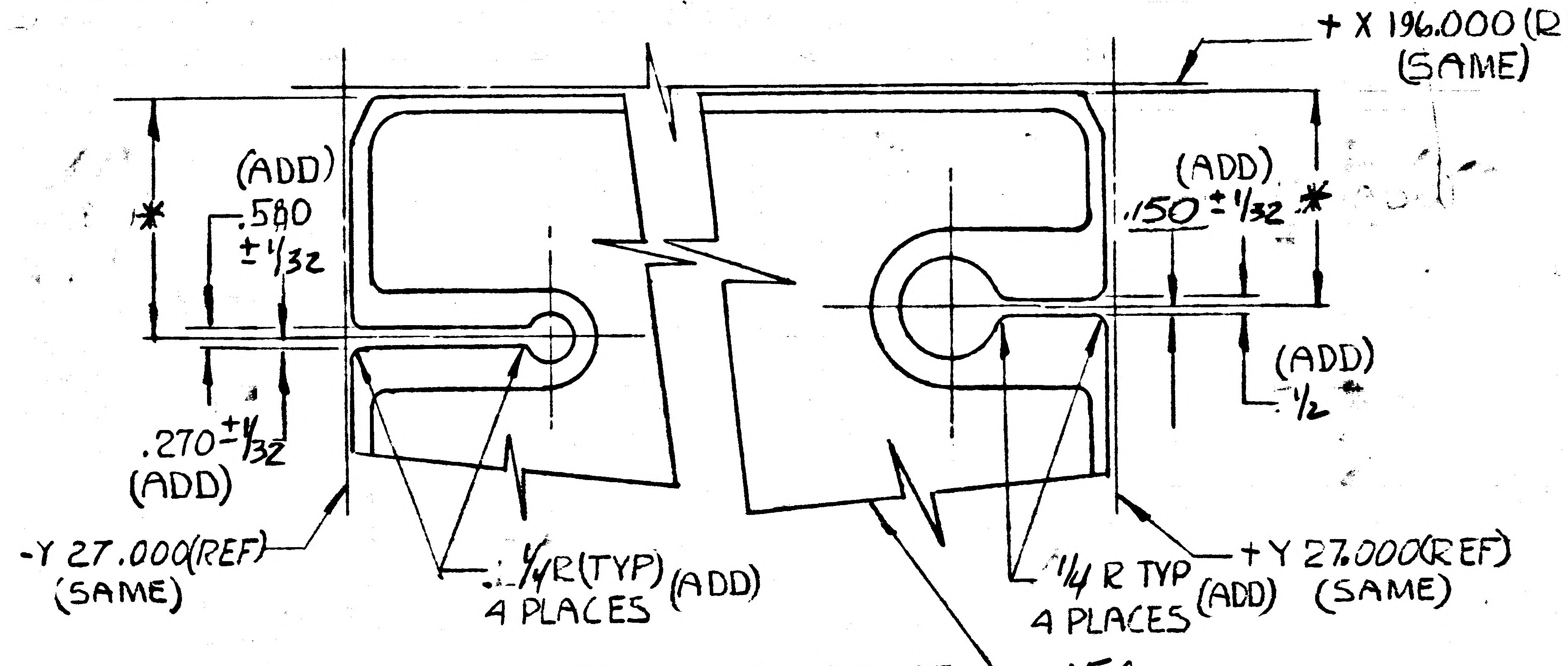
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG. NO.	LDW280-18432	EO NO.	B2
CONTROL INFO NO.	LDW280A8699		

REVISE -15 AS SHOWN


+X 196.000 (REF)
(SAME)
(ADD)
.500 ±1/32
*
(ADD)
.150 ±1/32
*
(ADD)
1/2
.270 ±1/32
(ADD)
-Y 27.000 (REF)
(SAME)
1/4 R (TYP)
4 PLACES
(ADD)
1/4 R TYP
4 PLACES
(ADD)
+Y 27.000 (REF)
(SAME)
-15 (SAME)

* PARALLEL TO UPPER EDGE OF PART

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 1997 3

REASON FOR EO: TO SALVAGE WIRE RUNS

DESCRIPTION OF EO: ON-15 ADDED SLOT CUTOUTS

GAEC EO RELEASE: JK 9/12

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	LM-15 (45)
		& LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	[illegible]			[illegible]	W/[illegible]		[illegible]	[illegible]
DATE	9/7			9/7/67	9/8/67		9/8	9/9/67
	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE BEAM PANEL ENG. COMPT - AFT	LDW280-18432	B2

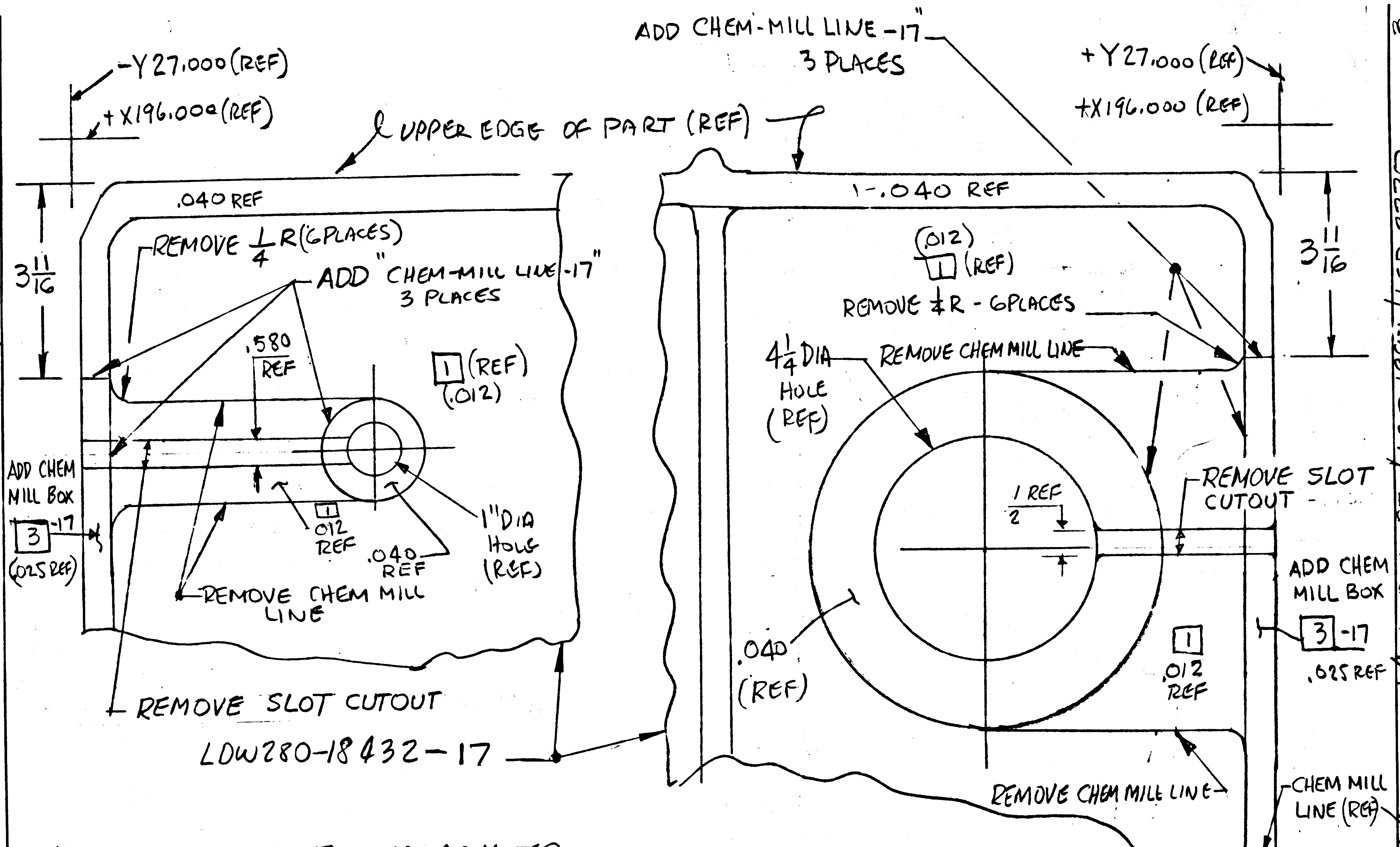
ED BY J. Andersen / J. Strakosch X1153 SECTION YD1 GROUP NO. 280 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18432
CONTROL INFO NO. LDW280A9489
EO NO. B3


-Y27.000 (REF)
+X196.000 (REF)
UPPER EDGE OF PART (REF)
ADD CHEM-MILL LINE -17" 3 PLACES
+Y27.000 (REF)
+X196.000 (REF)
$3\frac{11}{16}$
.040 REF
REMOVE $\frac{1}{4}$R (6 PLACES)
ADD "CHEM-MILL LINE -17" 3 PLACES
.580 REF
1 (REF) (.012)
ADD CHEM MILL BOX
3 -17
(.025 REF)
1
.012 REF
.040 REF
1" DIA HOLE (REF)
REMOVE CHEM MILL LINE
REMOVE SLOT CUTOUT
LDW280-18432-17
1-.040 REF
(.012)
1 (REF)
REMOVE $\frac{1}{4}$R - 6 PLACES
$3\frac{11}{16}$
$4\frac{1}{4}$ DIA HOLE (REF)
REMOVE CHEM MILL LINE
REMOVE SLOT CUTOUT
1 REF
2
ADD CHEM MILL BOX
3 -17
.025 REF
.040 (REF)
1
.012 REF
REMOVE CHEM MILL LINE
CHEM MILL LINE (REF)
2 REF
(.020 REF)

ADD -17 IDENT TO -15 EXCEPT AS NOTED
-17 EFF FOR LM-6(36) THRU LM-15(45) N/A LDW280-23532 1 REQD/MOD
PROCESS & FINISH "SEE NOTE *"
IN -17 CHEM MILL BLOCK, THICKNESS AFTER CHEM-MILL FOR $\boxed{1}$ IS $.012^{+.003}_{-.002}$ (WAS) $.015^{+.003}_{-.002}$

ON -15 REMOVE LM-6(36) THRU LM-15(45); LTA-3(13) REQMTS

ADD NOTE * "FABRICATE & FINISH #76 PER LPC 280-43"

* USE NEXT AVAILABLE NOTE NUMBER

ENG 32.2 REV 3-65

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG		
	✓	✓	LCD 2183 / LCD 1991 / LCD 2220	3

REASON FOR EO: REVISE WEB MIN GAGE, FINISH, & REMOVE ELEC HARNESS SLOT

DESCRIPTION OF EO: ADDED -17 & NOTE * REMOVED LM-6(36) THRU LM-15(45), LTA-3(13) REQMTS FROM -15

GAEC EO RELEASE: K

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	DATE
✓			-15 ✓	B

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					WBN/H		MRB	
	10/4/67			10/11/67	10/4/67		10/11/67	10-14-67
	VDI							

PRIORITY: C
DRAWING TITLE: WEB - O/S - BEAM PANEL ENG COMPT - AFT
DRAWING NO.: LDW280-18432
EO NO.: B3

10/13
ISSUED BY J. LANG/J. STRAKOSCH X1153
SECTION VDI
GROUP NO. 335 PL 25

01

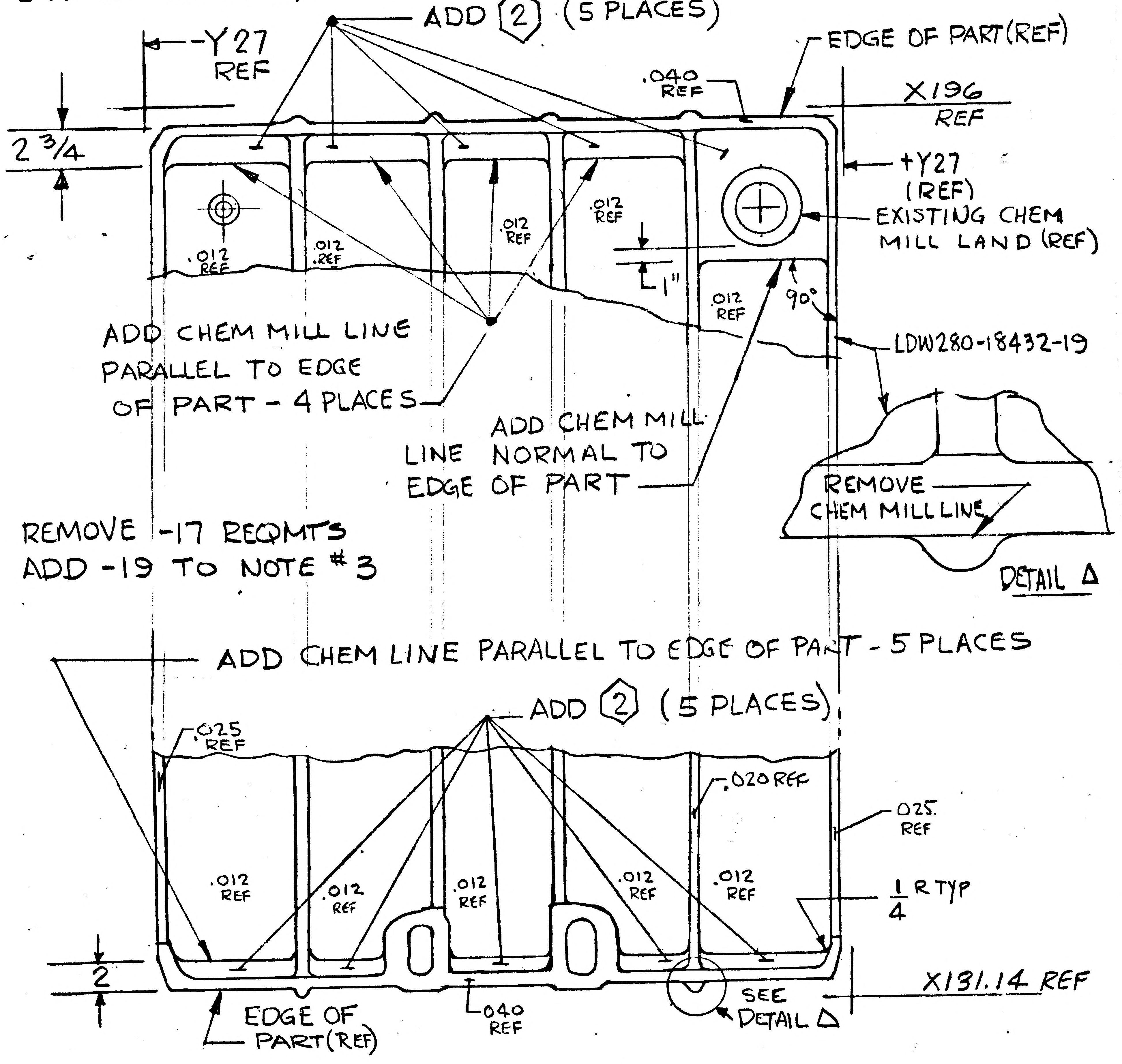
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18432
EO NO. B4
CONTROL INFO NO. LDW280A9633

ADD -19 IDENTICAL TO -17 EXCEPT AS NOTED.
-19 EFF LTA-3 (13), LM-6(36) THRU LM-15(45)


ADD ② (5 PLACES)
-Y27 REF
2 3/4
EDGE OF PART (REF)
.040 REF
X196 REF
+Y27 (REF)
EXISTING CHEM MILL LAND (REF)
.012 REF
.012 REF
.012 REF
.012 REF
.012 REF
1"
90°
LDW280-18432-19
ADD CHEM MILL LINE PARALLEL TO EDGE OF PART - 4 PLACES
ADD CHEM MILL LINE NORMAL TO EDGE OF PART
REMOVE CHEM MILL LINE
DETAIL Δ
ADD CHEM LINE PARALLEL TO EDGE OF PART - 5 PLACES
ADD ② (5 PLACES)
.025 REF
.020 REF
.025 REF
.012 REF
.012 REF
.012 REF
.012 REF
.012 REF
1/4 R TYP
2
X131.14 REF
EDGE OF PART (REF)
.040 REF
SEE DETAIL Δ

REMOVE -17 REQMTS
ADD -19 TO NOTE #3

-19			-17 REF		
NEW SYMBOL	NEW THICKNESS AFTER C/M	NEW DEPT OF CUT	OLD SYMBOL	OLD THICKNESS AFTER C/M	OLD DEPT OF CUT
①	.012 +.003 -.002	.028 REF	1	.015	.025 REF
②	.015 +.003 -.002	.025 REF	—	—	—
③	.020 ±.003	.020 REF	2	.020	.020 REF
④	.025 +.004 -.003	.025 REF	3	.025	.015 REF

TO BE LOFTED

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ LCD 2220 .

3

REASON FOR EO: ADD CHEM MILL LINE (REVISE MIN GAGE OF WEB)

DESCRIPTION OF EO: ADDED -19 REMOVED -17 REQMTS

Ⓡ GAEC C EO RELEASE J/C 10/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	
LM		LTA-3(13)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: REWORK ☐ SCRAP -17

APPROVED BY								
DATE 10/24/67			10/24/67	10/25/67		10/26/67	10-28-67
B	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE: WEB - D/S - BEAM PANEL ENG COMPT AFT
DRAWING NO. LDW280-18432
EO NO. B4

11 06 67 ISSUED BY J. LANG | J. STRAKOSCH X1153 10/23/67 SECTION VD1 GROUP NO. 335 PL 25

01
NAS 9-1100

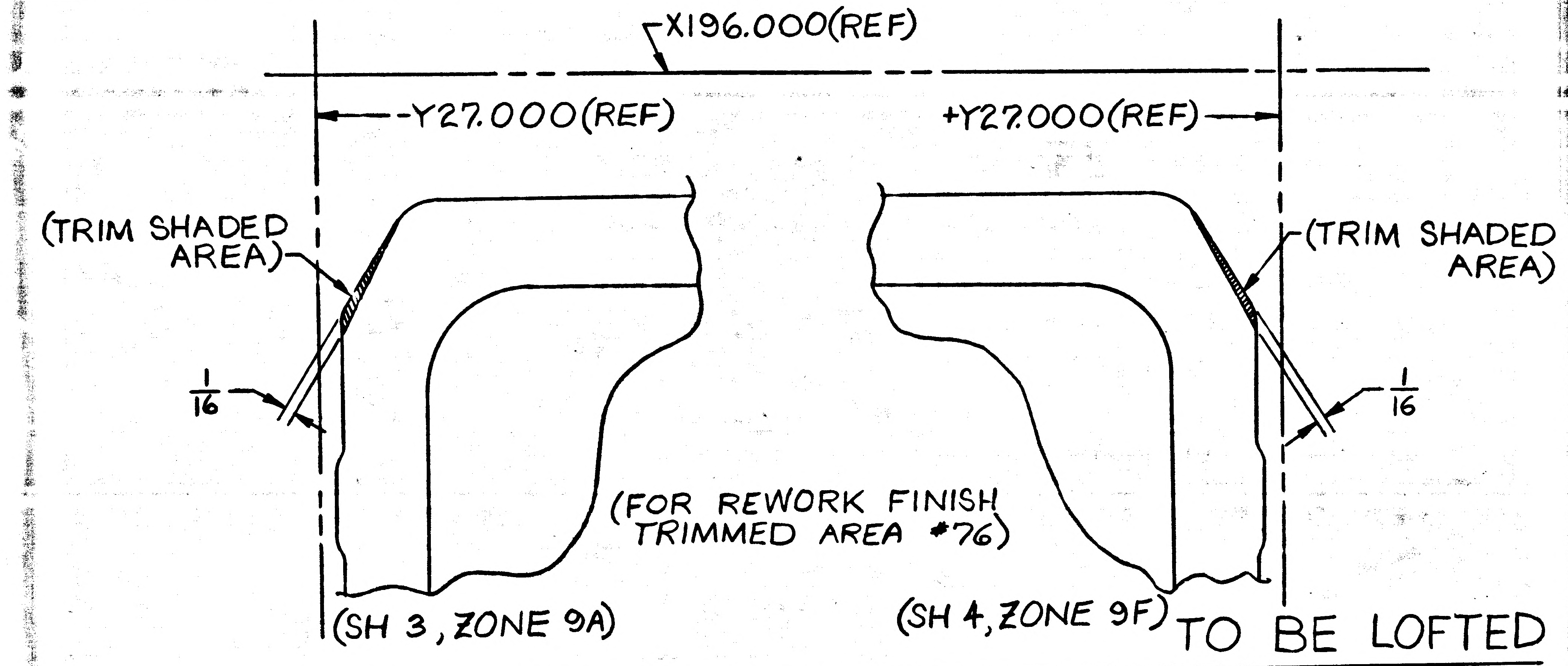
MJ

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO.	LDW280-18432	EO NO.	B5
CONTROL INFO NO.	LM-2-4175		


X196.000(REF)
-Y27.000(REF)
+Y27.000(REF)
(TRIM SHADED AREA)
(TRIM SHADED AREA)
1/16
1/16
(FOR REWORK FINISH TRIMMED AREA #76)
(SH 3, ZONE 9A)
(SH 4, ZONE 9F)

TO BE LOFTED

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE SUFFICIENT CLEARANCE BETWEEN WEB & CORNER RADIUS OF "PICTURE FRAME"

DESCRIPTION OF EO: FOR -19, IN FLD/DWG REVISED CORNER TRIM (2 PLACES)

GAEC EO RELEASE: JK 02035

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)THRU	
		LM-15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JW			=	MBS	CH	JP	JP
DATE	11/20/67				11/14/67	11/14/67	11/20/67	11-16-67
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB~DESCENT STAGE~BEAM PNL ENGINE COMPARTMENT~AFT	LDW280-18432	B5

ISSUED BY LIAISON J. MALONEY 11/14/67 X3604 SECTION V.D.I. GROUP NO. 33 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433	C2	
-18434	C1	
-18435	B4	
-18436	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM
-*

GAEC EO RELEASE: JK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GMP~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1553
CONTROL INFO NO. LDW 280B 8116		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18417	SEE DWG	A3
✓ 420		B3
✓ 424		B5
✓ 425		B5
✓ 429		C2
✓ 430		C5
✓ 431		C3
✓ 432		C2
LDW 280-18433	SEE DWG	C3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 34 & 35 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	(6) SWB 8-13-69 JK 8/15/69

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.					DATE	7-29-69			7/29/69	8-2-69		8/2/69 8-15-69
LM		LTA-11 ([redacted]) (23)		✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1553

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

NAS 9-1100

LDW280-18433 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
	LDW280-54533	LM-6(36)	1
LM	LDW280-23533	LTA 3(13)	1
PART NO. LDW280-18433-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-5(35)	1
LM	LDW280-54533	LM-4(34)	1
PART NO. LDW280-18433-13		GAEC SCH NO. 51-4	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10		2.00		3.00	4.00
REV	B		B		B		B	B
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO B

PRIM NO. 207 K001 16B 10/20/67 OK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE ✓

CLASS I ENGRG CHANGE

LCD 1997

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A. STERNBERG 7/11/67

LAYOUT BY PLANTE

CHECKED BY S. Kartzman 9-15-67

GR LEADER

VEH DES INT 9/16/67

STRUCTURES NM WN 9/13

STRUCTURES 9/13

WEIGHT

RELIABILITY

PROJ ENGR 9/18

REL GROUP 9/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-BEAM PANEL-LH-AFT

SIZE B

CODE IDENT NO. 26512

LDW280-18433 B

SCALE NONE

SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1						✓	EOA1 LCD1997	EOA1 INITIAL DWG RELEASE PARTS MADE PER EO	LM-4(34) THRU LM-15(45) LTA-3 (13)	NOT	REQD	ARTIE STERNBERG 9-1-67 JK		
	2						✓	EOA2 LCD1997	ADDED -13, REMOVED -11			-11			
	3						✓	LEO280-696 LCD1997	ADDED NOTE REMOVED NOTE (X,Y,Z)		NOT	REQD			
	4								REF EO A1 & LEO280-696 (A3) ALL NOTES ARE NOT APPLICABLE ADDED NOTES 1,2,3 & 4						
B	1	3.00				✓		LEO280-706 LCD 1997	ON-13 REVISED CHEM-MILL TOLERANCE $.XXX^{+.003}_{-.002}$ WAS .015±.002	LM-4 (34) THRU LM-15(45) LTA-3 (13)	NOT	REQD	A. LITVINOFF 10-21-67		
	2	3.00	7A				✓	EO B2 LCD 1997	ON-13, INF/D ADDED 1/2" SLOT	LTA-3 (13) THRU LM-4 (34) LM-15 (45)	-13				
	3	1.00, 2.00 3.00 & 4.00	7A	PRIOR EVENT CODE B			✓	EO B3 LCD 2183	ADDED -15. REMOVED LM-6(36) THRU LM-15(45) REQMTS IN-13 MOD/BLK.	NOTED		✓			
	4	3.00	1B			✓		LCD 1997	REF EO LEO 280-706, $.015^{+.003}_{-.002}$ WAS .015±.002 SHOULD BE $.015^{+.003}_{-.002}$ WAS .015±.002 & $.018^{+.003}_{-.002}$ WAS .018±.002.	LM-4(34) THRU LM-15(45) LTA-3. (13)	NOT	REQD			
	5	1.00, 2.00 3.00, 4.00	5A	PRIOR EVENT CODE B			✓	LCD 2220	REMOVED -15 ADDED -17 REMOVED LTA-3(13) EFF FROM -13, ADDED -17 TO NOTE #3 WCG	LTA-3 LM-6 THRU LM-15		-15 -13		JL	

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A	——	9/16/67	NM 9/13/67			
B	PST 10/25/67	10/25/67	NM 10/26/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18433	B

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-18433-17	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.063X57X68	SEE NO	TE 3	
							LDW280-18433-13	S	WEB	AL ALLOY SH	QQ-A250/12	7075-T6	.063x57x68	SEE	NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

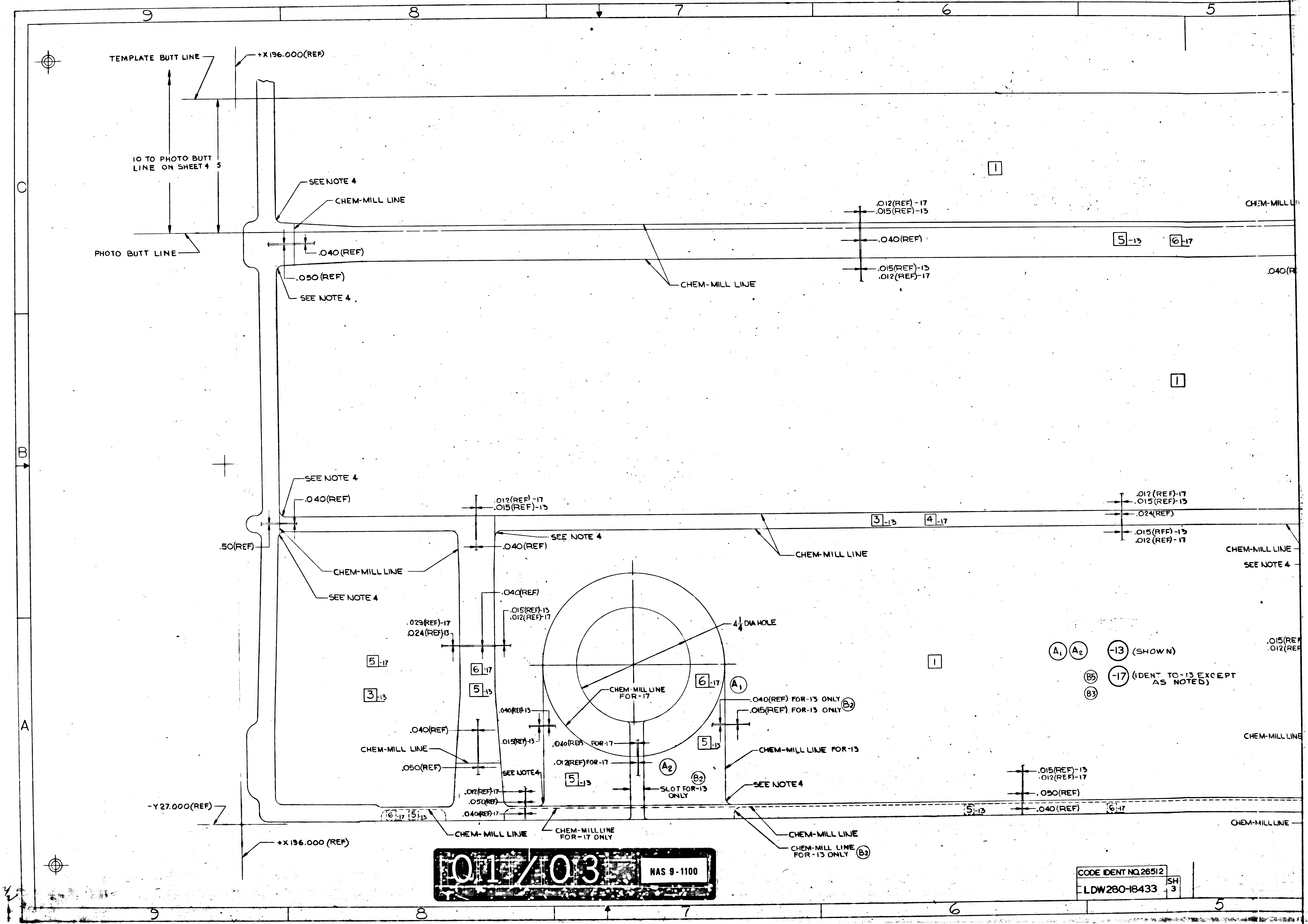
SIZE	CODE IDENT NO.		
B	26512	LDW280-18433	B Ⓑ

SCALE NONE SHEET 2.00

ENG 77.2 7-65

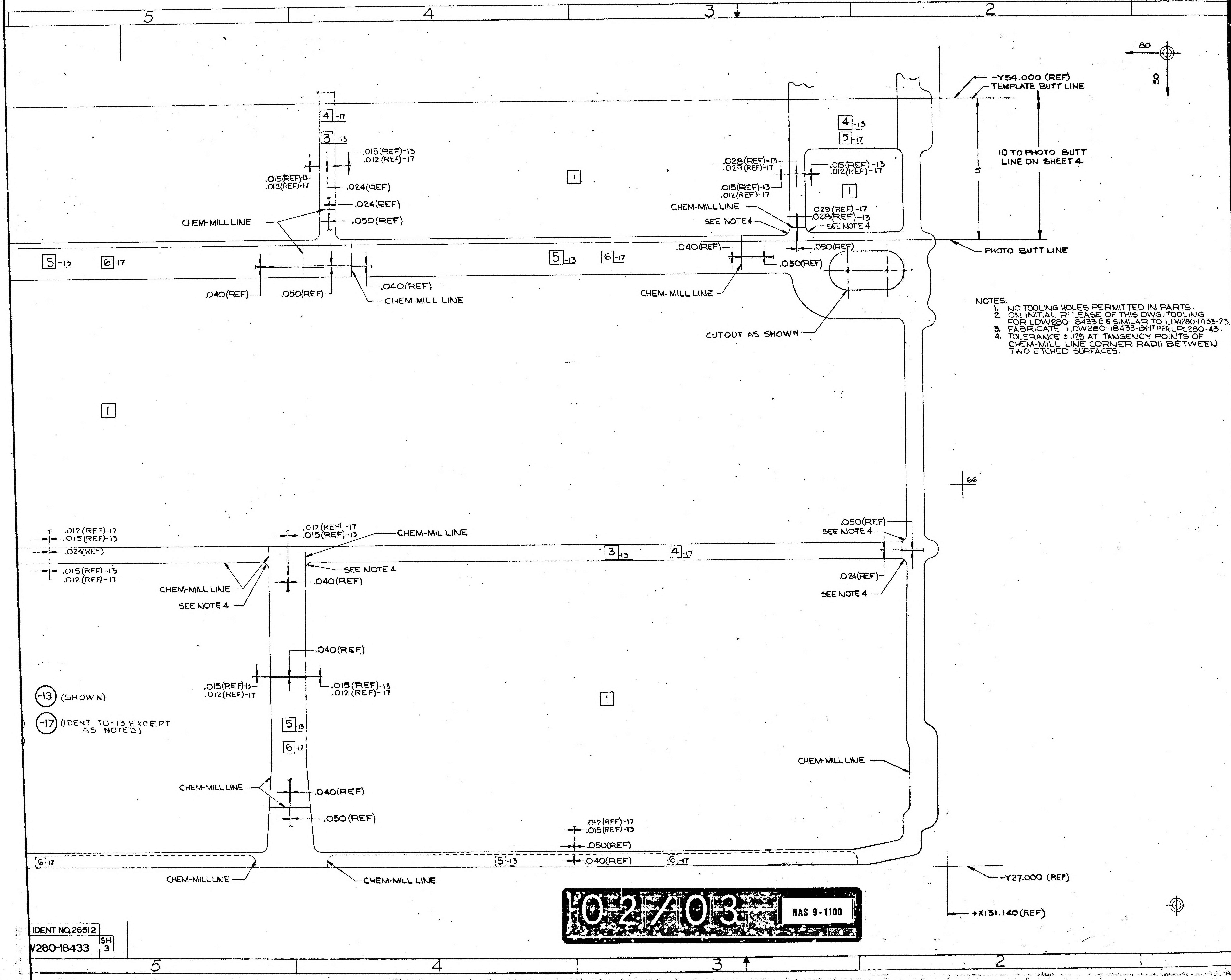
01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
+X 196.000(REF)
10 TO PHOTO BUTT LINE ON SHEET 4 5
SEE NOTE 4
CHEM-MILL LINE
PHOTO BUTT LINE
.040(REF)
.050(REF)
SEE NOTE 4
CHEM-MILL LINE
.012(REF)-17
.015(REF)-13
.040(REF)
.015(REF)-13
.012(REF)-17
1
5 -13
6 -17
CHEM-MILL LI
.040(R
1
SEE NOTE 4
.040(REF)
.50(REF)
.012(REF)-17
.015(REF)-13
SEE NOTE 4
.040(REF)
CHEM-MILL LINE
SEE NOTE 4
3 -13
4 -17
CHEM-MILL LINE
.012(REF)-17
.015(REF)-13
.024(REF)
.015(RFF)-13
.012(REF)-17
CHEM-MILL LINE
SEE NOTE 4
.040(REF)
.015(REF)-13
.012(REF)-17
.029(REF)-17
.024(REF)-13
4 1/4 DIA HOLE
5 -17
6 -17
5 -13
3 -13
CHEM-MILL LINE FOR-17
6 -17
A1
.040(REF) FOR-13 ONLY B2
.015(REF) FOR-13 ONLY
1
A1 A2
-13 (SHOWN)
B5 -17 (IDENT TO -13 EXCEPT AS NOTED)
B3
.015(REF
.012(REF
.040(REF)-13
.015(REF)-13
.040(REF)
CHEM-MILL LINE
.050(REF)
SEE NOTE 4
.040(REF) FOR-17
.012(REF) FOR-17
A2
B2
5 -13
5 -13
CHEM-MILL LINE FOR-13
SEE NOTE 4
SLOT FOR-13 ONLY
CHEM-MILL LINE
.015(REF)-13
.012(REF)-17
.050(REF)
.040(REF)
5 -13
6 -17
-Y 27.000(REF)
.012(REF)-17
.050(REF)
.040(REF)-17
6 -17
5 -13
CHEM-MILL LINE
CHEM-MILL LINE FOR-17 ONLY
CHEM-MILL LINE
CHEM-MILL LINE FOR-13 ONLY B2
CHEM-MILL LINE
+X 196.000 (REF)

01/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-18433 SH 3



5
4
3
2
80
80
-Y54.000 (REF)
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
4 -17
3 -13
4 -13
5 -17
1
.015(REF)-13
.012(REF)-17
.024(REF)
.050(REF)
CHEM-MILL LINE
5 -13
6 -17
.040(REF)
.050(REF)
.040(REF)
CHEM-MILL LINE
.028(REF)-13
.029(REF)-17
.029(REF)-17
.028(REF)-13
SEE NOTE 4
CUTOUT AS SHOWN
66
.050(REF)
.024(REF)
CHEM-MIL LINE
3 -13
4 -17
.040(REF)
-13 (SHOWN)
-17 (IDENT TO -13 EXCEPT AS NOTED)
-Y27.000 (REF)
+X131.140 (REF)

NOTES.
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG; TOOLING FOR LDW280- 8433-13 IS SIMILAR TO LDW280-17133-23.
3. FABRICATE LDW280-18433-13&17 PER LPC280-43.
4. TOLERANCE ± .125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

IDENT NO. 26512

W280-18433 SH 3

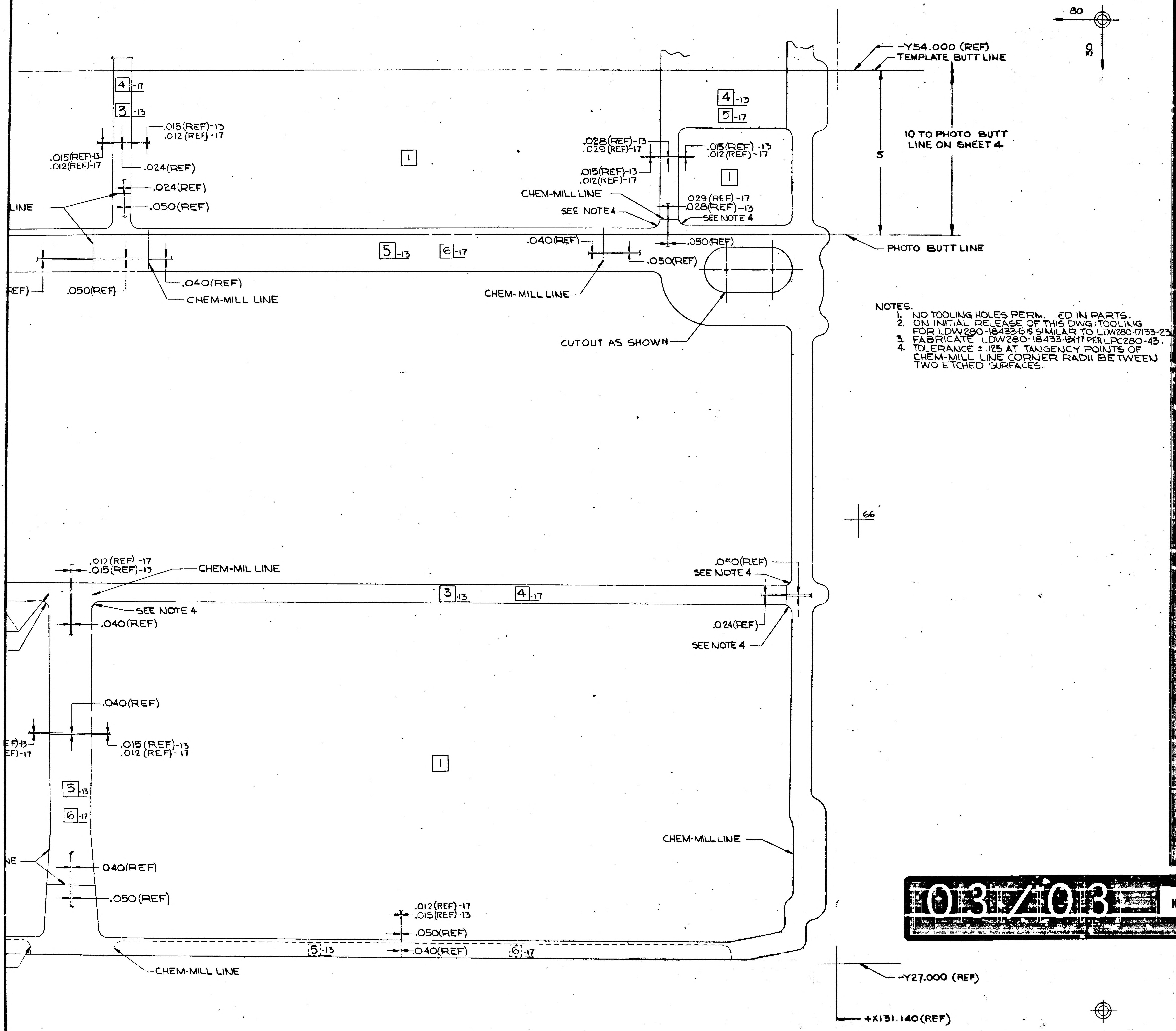
02/03

NAS 9-1100

FOR ENGRG RE

LDW

LDW


4
3
2
1
-Y54.000 (REF)
TEMPLATE BUTT LINE
80
50
4 -17
3 -13
4 -13
5 -17
.015(REF)-13
.012(REF)-17
.015(REF)-13
.012(REF)-17
.024(REF)
.024(REF)
.050(REF)
LINE
.028(REF)-13
.029(REF)-17
.015(REF)-13
.012(REF)-17
.015(REF)-13
.012(REF)-17
1
1
1
CHEM-MILL LINE
SEE NOTE 4
.029(REF)-17
.028(REF)-13
SEE NOTE 4
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
5 -13
6 -17
.040(REF)
.050(REF)
.050(REF)
REF)
.050(REF)
.040(REF)
CHEM-MILL LINE
CHEM-MILL LINE
CUTOUT AS SHOWN
66
.012(REF)-17
.015(REF)-13
CHEM-MIL LINE
.050(REF)
SEE NOTE 4
3 -13
4 -17
SEE NOTE 4
.040(REF)
.024(REF)
SEE NOTE 4
.040(REF)
EF)-13
EF)-17
.015(REF)-13
.012(REF)-17
1
5 -13
6 -17
CHEM-MILL LINE
NE
.040(REF)
.050(REF)
.012(REF)-17
.015(REF)-13
.050(REF)
5 -13
.040(REF)
6 -17
CHEM-MILL LINE
-Y27.000 (REF)
+X131.140(REF)
4
3
2

NOTES.
1. NO TOOLING HOLES PERM[illegible]ED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG; TOOLING FOR LDW280-18433-13 IS SIMILAR TO LDW280-17133-23
3. FABRICATE LDW280-18433-13&17 PER LPC280-43.
4. TOLERANCE ± .125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

03/03 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STANP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 108) = 27.0 SQ. FT.

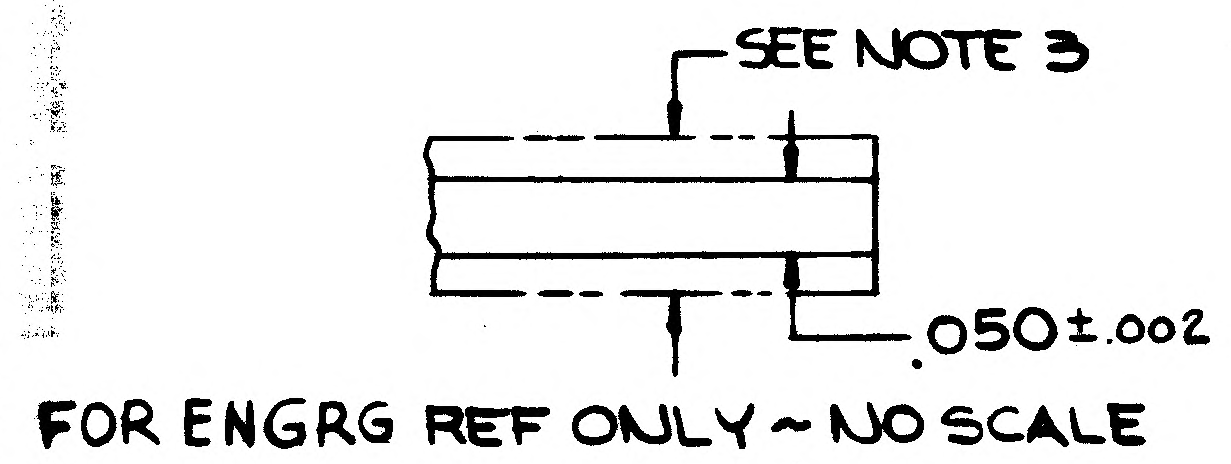
½ SIZE SHEET AREA (½ OF FULL) = 7.0 SQ. FT.

PRINT TRIM LINE

C

B

A


SEE NOTE 3
.050±.002

FOR ENGRG REF ONLY ~ NO SCALE

LDW280-18433-13

CHEM-MILL LINE TOLERANCE ±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.035(REF)
2	$.018^{+.003}_{-.002}$	.032(REF)
3	$.024^{+.003}_{-.002}$	.026(REF)
4	.028 ± .003	.022(REF)
5	$.040^{+.004}_{-.003}$	.010(REF)

LDW280-18433 B

LDW280-18433-17

CHEM-MILL LINE TOLERANCE ± 1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

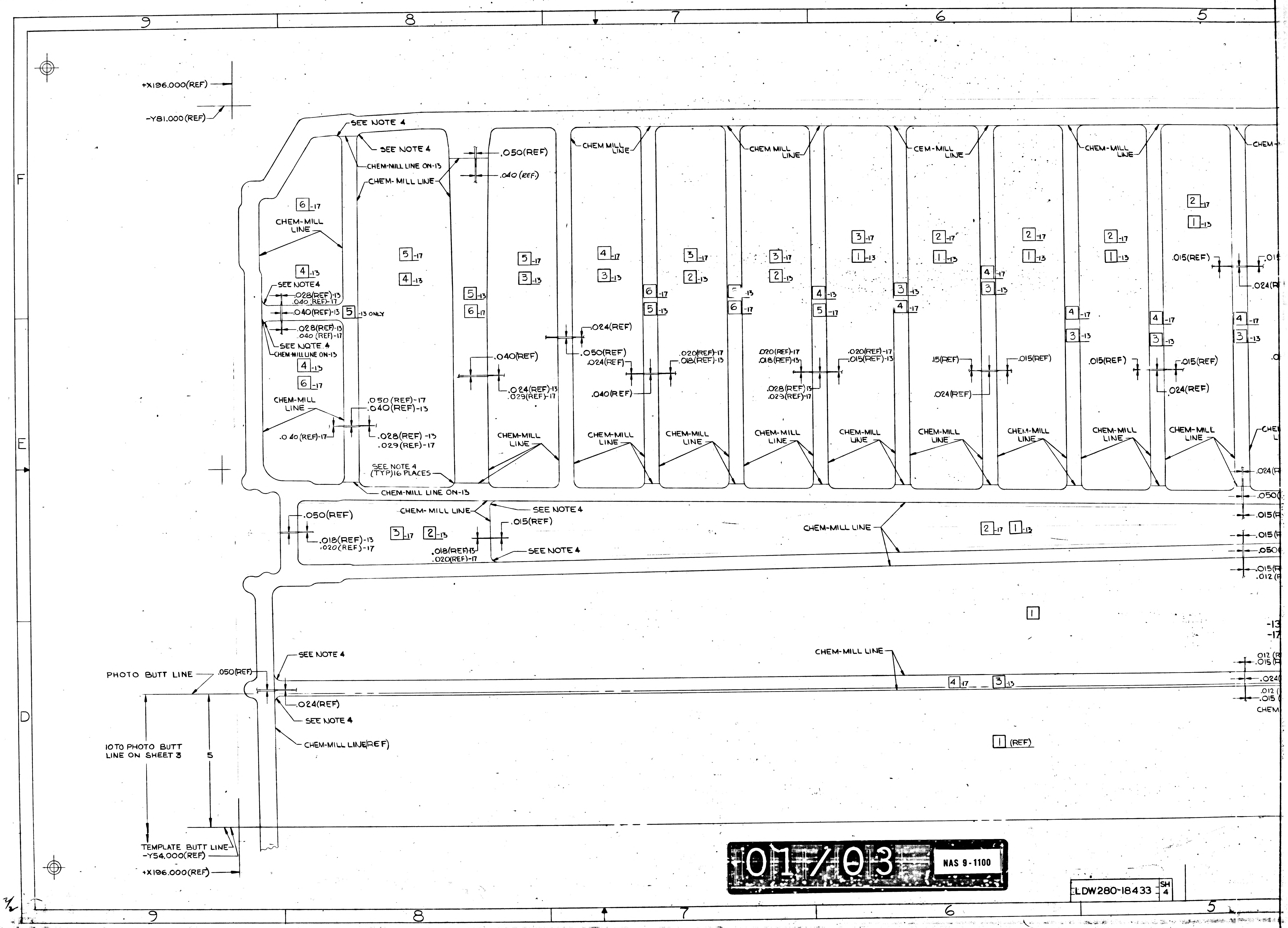
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.038 (REF)
2	$.015^{+.003}_{-.002}$	.035 (REF)
3	$.C20^{+.003}_{-.002}$	.030 (REF)
4	.024 ± .003	.026 (REF)
5	$.029^{+.004}_{-.003}$	.021 (REF)
6	.040 ± .004	.010 (REF)

LDW280-18433 B

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18433	B ③
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

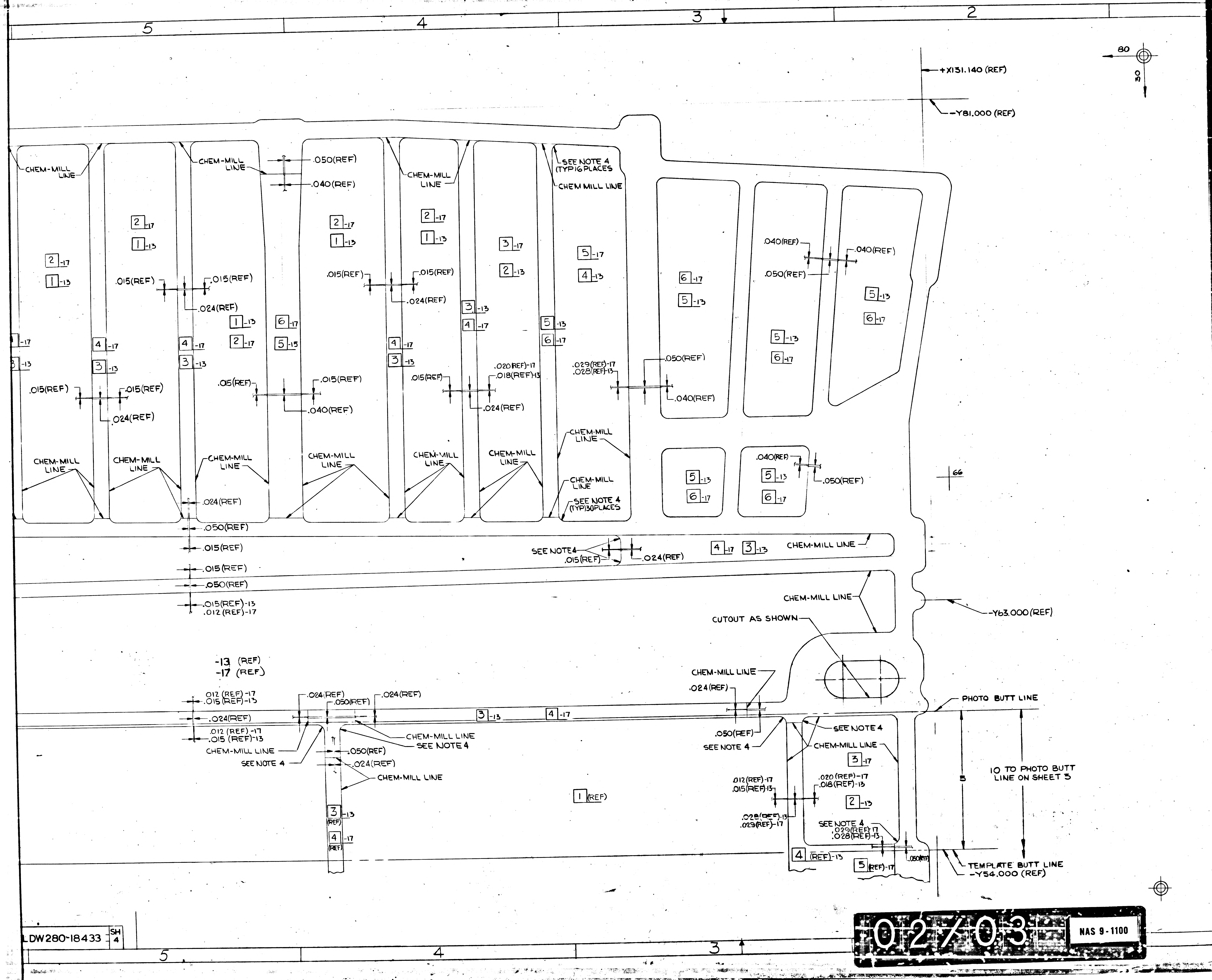
FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64


9
8
7
6
5
F
E
D
+X196.000(REF)
-Y81.000(REF)
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE ON-13
CHEM- MILL LINE
.050(REF)
.040 (REF)
CHEM MILL LINE
CHEM MILL LINE
CEM-MILL LINE
CHEM-MILL LINE
CHEM-
6 -17
CHEM-MILL LINE
5 -17
4 -13
4 -13
SEE NOTE 4
.028(REF)-13
.040 (REF)-17
.040(REF)-13
5 -13 ONLY
.028(REF)-13
.040 (REF)-17
SEE NOTE 4
CHEM-MILL LINE ON-13
4 -13
6 -17
CHEM-MILL LINE
.050 (REF)-17
.040(REF)-13
.028(REF) -13
.029(REF)-17
.040 (REF)-17
SEE NOTE 4 (TYP)16 PLACES
CHEM-MILL LINE ON-13
5 -13
6 -17
5 -17
3 -13
.040(REF)
.024(REF)-13
.029(REF)-17
CHEM-MILL LINE
4 -17
3 -13
.024(REF)
.050(REF)
.024(REF)
.040(REF)
CHEM-MILL LINE
6 -17
5 -13
3 -17
2 -13
.020(REF)-17
.018(REF)-13
CHEM-MILL LINE
5 -13
6 -17
3 -17
2 -13
.020(REF)-17
.018(REF)-13
.028(REF)-13
.029(REF)-17
CHEM-MILL LINE
4 -13
5 -17
3 -17
1 -13
.020(REF)-17
.015(REF)-13
CHEM-MILL LINE
3 -13
4 -17
2 -17
1 -13
.15(REF)
.024(REF)
CHEM-MILL LINE
4 -17
3 -13
2 -17
1 -13
.015(REF)
CHEM-MILL LINE
4 -17
3 -13
2 -17
1 -13
.015(REF)
CHEM-MILL LINE
4 -17
3 -13
2 -17
1 -13
.015(REF)
.015(REF)
.024(REF)
CHEM-MILL LINE
4 -17
3 -13
.024(R
.050(REF)
CHEM- MILL LINE
SEE NOTE 4
.015(REF)
.018(REF)-13
.020(REF)-17
3 -17
2 -13
.018(REF)-13
.020(REF)-17
SEE NOTE 4
CHEM-MILL LINE
2 -17
1 -13
.050
.015
.015
.050
.015
.012
1
-13
-17
CHEM-MILL LINE
PHOTO BUTT LINE
.050(REF)
SEE NOTE 4
.024(REF)
SEE NOTE 4
CHEM-MILL LINE(REF)
4 -17
3 -13
.012
.015
.024
.012
.015
CHEM
1 (REF)
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMPLATE BUTT LINE
-Y54.000(REF)
+X196.000(REF)
9
8
7
6
5

01/03 NAS 9-1100

LDW280-18433 SH 4



5
4
3
2
+X131.140 (REF)
-Y81.000 (REF)
80
30
CHEM-MILL LINE
CHEM-MILL LINE
.050(REF)
.040(REF)
CHEM-MILL LINE
SEE NOTE 4 (TYP 16 PLACES)
CHEM MILL LINE
2 -17
1 -13
.015(REF)
.015(REF)
.024(REF)
.015(REF)
.015(REF)
.024(REF)
3 -17
2 -13
5 -17
4 -13
6 -17
5 -13
.040(REF)
.040(REF)
.050(REF)
5 -13
6 -17
4 -17
3 -13
5 -15
.015(REF)
.015(REF)
.024(REF)
.015(REF)
.015(REF)
.040(REF)
.020(REF)-17
.018(REF)-13
.024(REF)
.029(REF)-17
.028(REF)-13
.050(REF)
.040(REF)
CHEM-MILL LINE
SEE NOTE 4 (TYP) 30 PLACES
.040(REF)
.050(REF)
66
.024(REF)
.050(REF)
.015(REF)
SEE NOTE 4
.015(REF)
.024(REF)
4 -17
3 -13
CHEM-MILL LINE
.015(REF)
.050(REF)
.015(REF)-13
.012 (REF)-17
CHEM-MILL LINE
-Y63.000(REF)
CUTOUT AS SHOWN
-13 (REF)
-17 (REF)
CHEM-MILL LINE
.024(REF)
.012 (REF)-17
.015 (REF)-13
.024(REF)
.050(REF)
.024(REF)
PHOTO BUTT LINE
.024(REF)
3 -13
4 -17
.012 (REF) -17
.015 (REF)-13
CHEM-MILL LINE
SEE NOTE 4
CHEM-MILL LINE
SEE NOTE 4
.050(REF)
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
.050(REF)
.024(REF)
CHEM-MILL LINE
3 -17
10 TO PHOTO BUTT LINE ON SHEET 3
3
.020 (REF)-17
.018 (REF)-13
.012(REF)-17
.015(REF)-13
1 (REF)
2 -13
3 -13 (REF)
4 -17 (REF)
.028(REF)-13
.029(REF)-17
SEE NOTE 4
.029(REF) 17
.028(REF)-13
4 (REF)-13
5 (REF)-17
.050(REF)
TEMPLATE BUTT LINE
-Y54.000 (REF)
LDW280-18433 SH 4
5
4
3

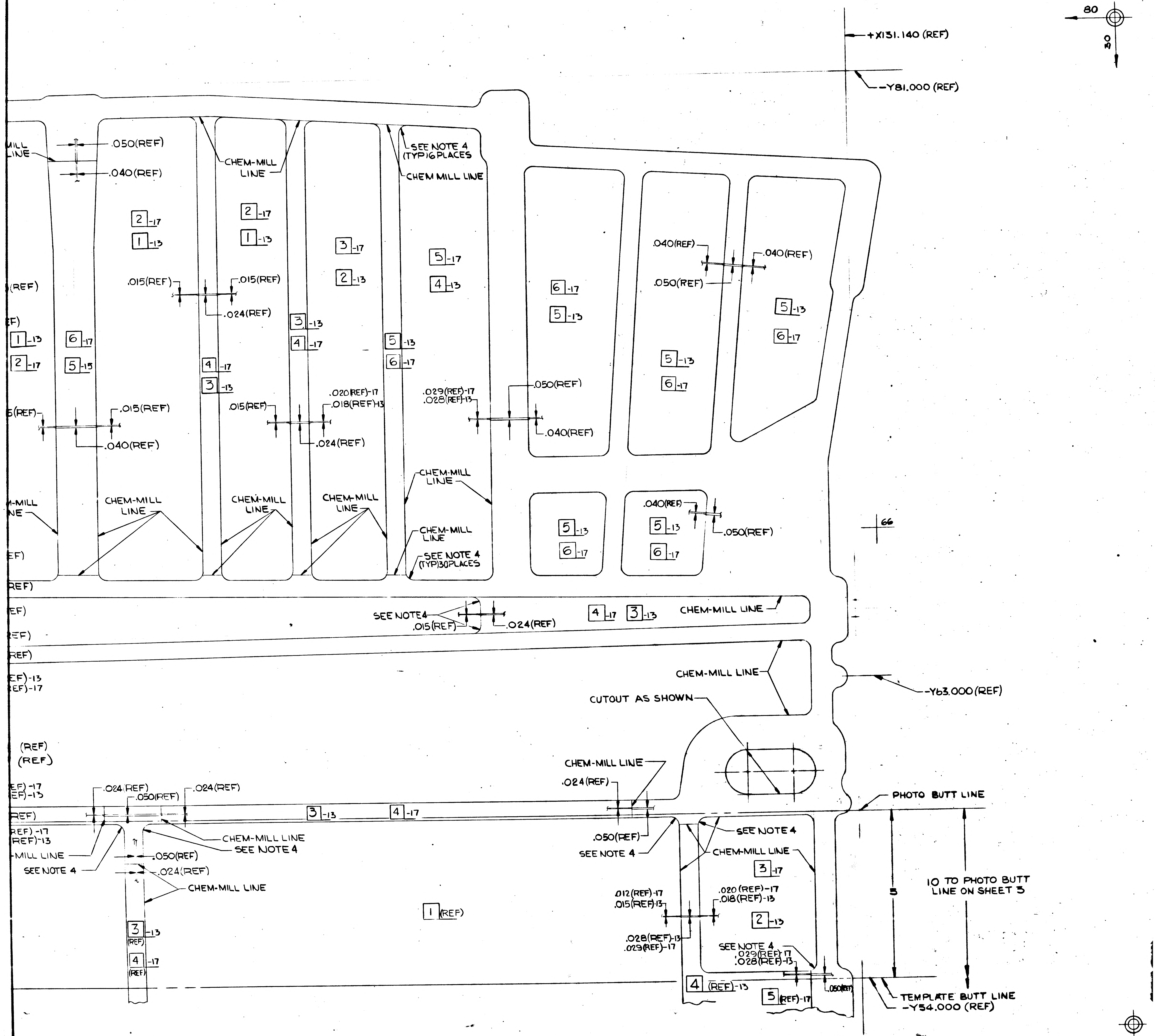
02/03

NAS 9-1100

LM

MODEL OR END ITEM

1



4
3
2
80
30
+X131.140 (REF)
-Y81.000 (REF)
ILL
INE
.050(REF)
.040(REF)
CHEM-MILL LINE
SEE NOTE 4 (TYP16 PLACES)
CHEM MILL LINE
2 -17
1 -13
3 -17
2 -13
5 -17
4 -13
(REF)
.015(REF)
.015(REF)
.024(REF)
3 -13
4 -17
5 -13
6 -17
1 -13
2 -17
6 -17
5 -15
4 -17
3 -13
6 -17
5 -13
.040(REF)
.050(REF)
.040(REF)
5 -13
6 -17
5 -13
6 -17
.020(REF)-17
.018(REF)-13
.029(REF)-17
.028(REF)-13
.050(REF)
.015(REF)
.015(REF)
.040(REF)
.024(REF)
.040(REF)
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4 (TYP)30PLACES
.040(REF)
5 -13
6 -17
.050(REF)
66
SEE NOTE 4
.015(REF)
.024(REF)
4 -17
3 -13
CHEM-MILL LINE
CHEM-MILL LINE
CUTOUT AS SHOWN
-Y63.000 (REF)
(REF)
(REF)
CHEM-MILL LINE
.024(REF)
.024(REF)
.050(REF)
.024(REF)
3 -13
4 -17
PHOTO BUTT LINE
.050(REF)
SEE NOTE 4
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE 4
-MILL LINE
SEE NOTE 4
.050(REF)
.024(REF)
CHEM-MILL LINE
3 -17
.012(REF)-17
.015(REF)-13
.020(REF)-17
.018(REF)-13
2 -13
10 TO PHOTO BUTT LINE ON SHEET 3
5
1 (REF)
3 (REF) -13
4 (REF) -17
.028(REF)-13
.029(REF)-17
SEE NOTE 4
.029(REF)-17
.028(REF)-13
4 (REF)-13
5 (REF)-17
.050(REF)
TEMPLATE BUTT LINE
-Y54.000 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP. THDS.
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING.

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN
TO .0005 MAX. MIN THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCES FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 108) = 27.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 7.0 SQ. FT.
PRINT TRIM LINE

F
E
D
B
LDW280-18433 B
LDW280-18433 B

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-18433	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

Ⓑ

1

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

/A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18433 | EO NO. A1
CONTROL INFO NO. LDW280A-8791

CREATE -11 WEB IDENTICAL TO LDW280-17133. -23WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T=S
EFF: N/A LDW280-23533 LTA-3D(13) 1 REQD/MOD.
N/A LDW280-54533 LM4(34) THRU LM15(45) 1 REQ/MOD

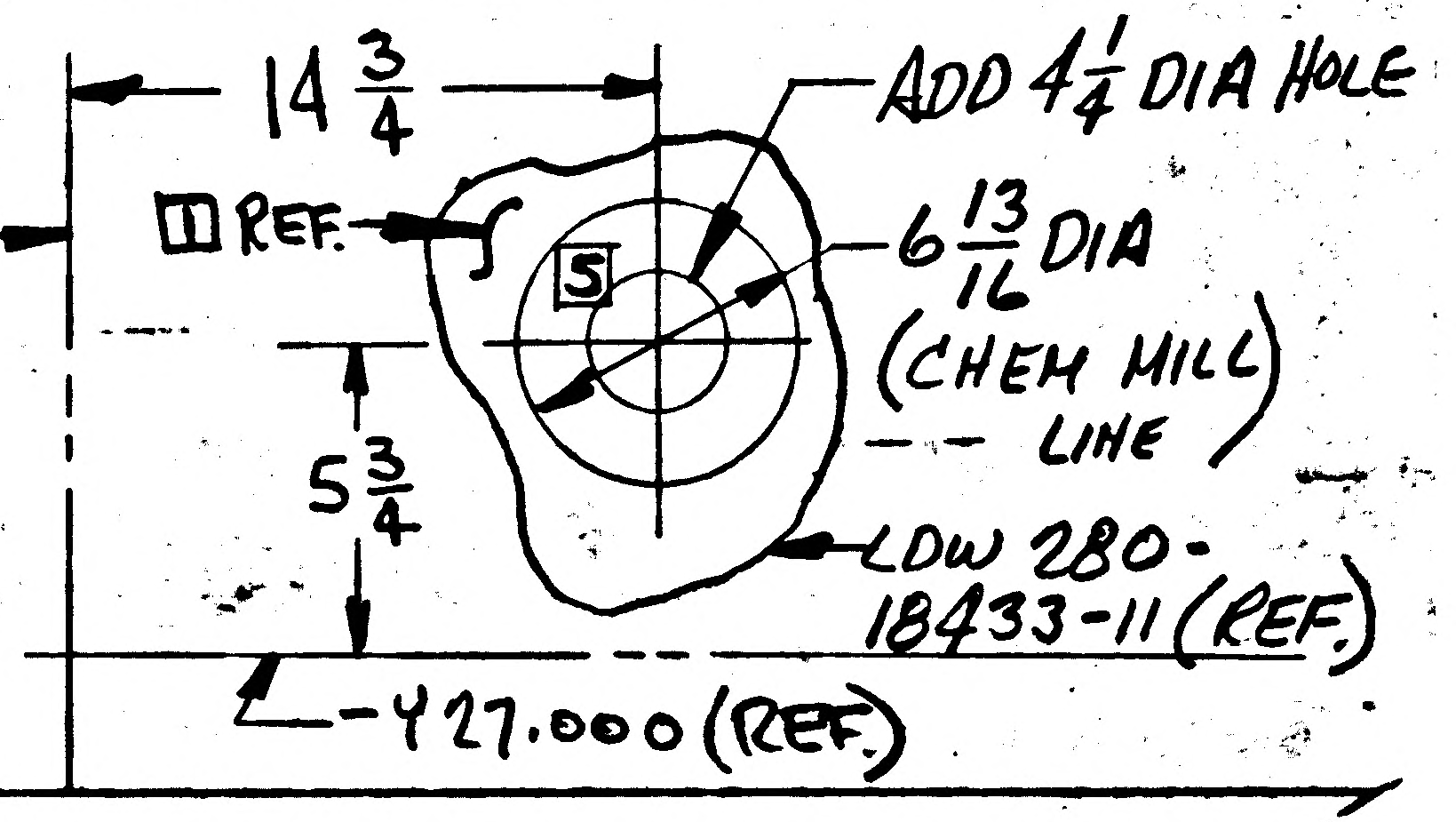
(ADD) LDW280-18433-11 WEB

CHEM-MIL LINE TOL.... (SAME)

-11 IDENTICAL TO LDW280-17133-23 REV B INCLUDING EO C_1 C_2(LCO 205) C_3 C_4 LCO 545 C_5(LCO 599)

LDW280-17133-23 (REF)	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	1	.015 ±.002	.035 (REF)
2			
3	2	.018 ±.002	.032 (REF)
4			
5	3	.024 +.003 -.002	.026 (REF)
6	4	.028 ±.003	.022 (REF)
7	5	.040 +.004 -.003	.010 (REF)

ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18433-11 IS SIMILAR TO LDW280-17133-23



* NEW DWG — NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1997 5

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG * RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JaP			JKS	NM		9wBD	
DATE	8/18/67			8/18/67	8-19-67		8/21/67	8-24-67
	.DI							

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE - BEAM PANEL
DRAWING NO.: LDW280-18433
EO NO.: A1

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

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NAS 9-1100

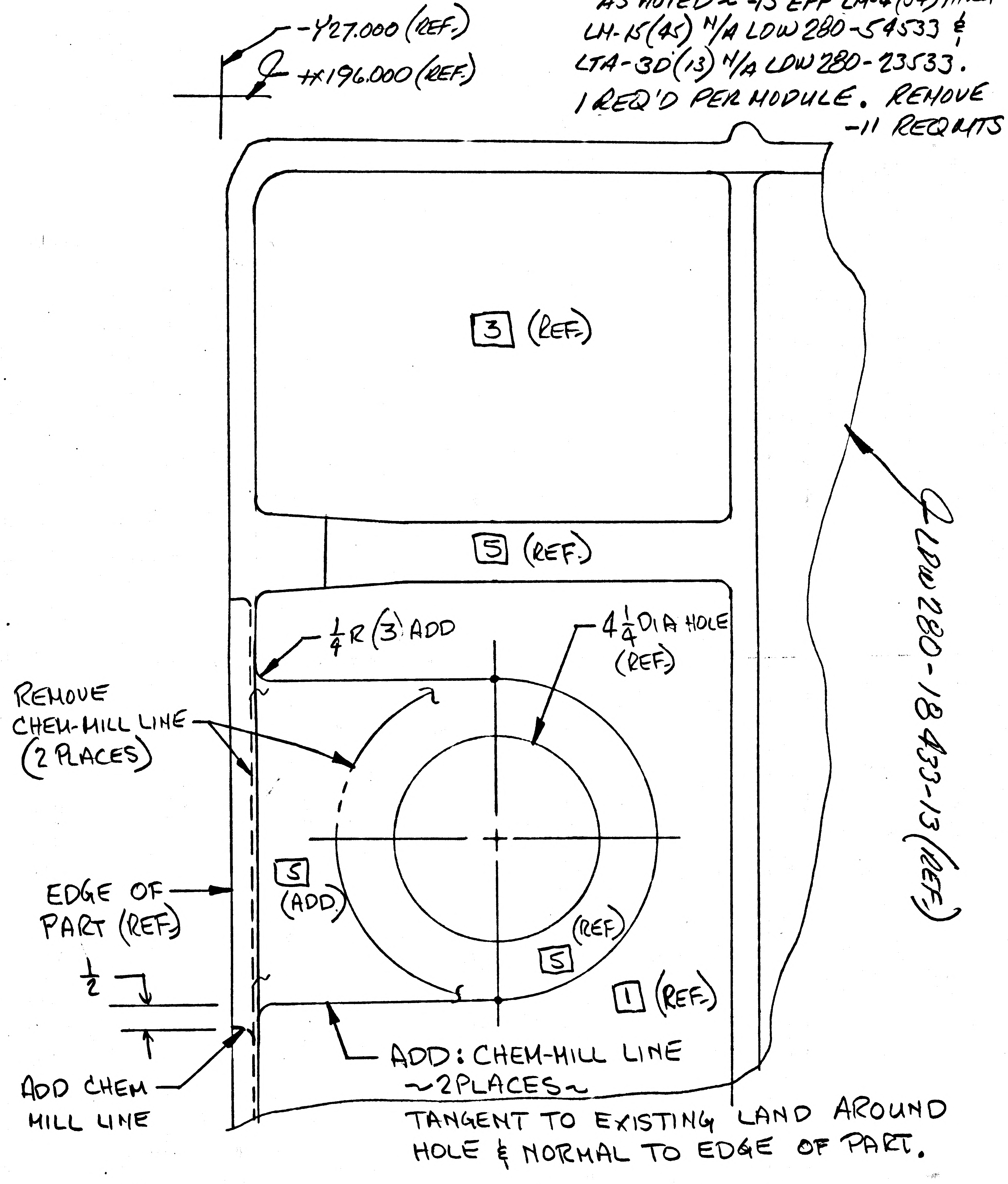
A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18433 | EO NO. A2
CONTROL INFO NO. LDW 280 A 8937

ADD -13 IDENTICAL TO -11 EXCEPT AS NOTED ~ -13 EFF LH-4(34) THRU LH-15(45) N/A LDW 280-54533 & LTA-3D(13) N/A LDW 280-23533. 1 REQ'D PER MODULE. REMOVE -11 REQMTS


-Y27.000 (REF.)
+X196.000 (REF.)
3 (REF.)
5 (REF.)
1/4 R (3) ADD
4 1/4 DIA HOLE (REF.)
REMOVE CHEM-MILL LINE (2 PLACES)
5 (ADD)
5 (REF.)
1 (REF.)
EDGE OF PART (REF.)
1/2
ADD CHEM MILL LINE
LDW 280-18433-13 (REF.)

ADD: CHEM-MILL LINE ~2PLACES~ TANGENT TO EXISTING LAND AROUND HOLE & NORMAL TO EDGE OF PART.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCO 1997							5
REASON FOR EO ADD C/M LAND FOR SPLICING TO SALVAGE WIRE RUNS.				DESCRIPTION OF EO ADDED -13, REMOVED -11									Ⓡ GAEC C EO RELEASE JK 8/28/7
MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP -11	APPROVED BY / DATE	JaP 8/24/67 V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	NM 8/25/67 STRESS GROUP
LM		LH-4(34) THRU											
		LH-15(45)											
		LTA-3D(13)											

LIAISON ENGRG | PROJ ENGRG 8/25/67 | GOVT 8-26-67

PRIORITY C | DRAWING TITLE WEB ~ D.S. ~ BEAM PANEL L.H. AFT. | DRAWING NO. LDW 280-18433 | EO NO. A2

8/25 ISSUED BY Gus Hansmann X1153 SECTION V.D.I. GROUP NO. 280 PL. 25

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NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ✓

DWG. NO. LEO 280
EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD1997	5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE (*). REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LMA(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

APPROVED BY					NM			
DATE	8/21/67				8/23/67		8/24/67	8-28-67
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO. LEO 280

EO NO. 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
✓ LDW280-18424	SEE DWG	B1
✓ -18425		B1
✓ -18426		B1
✓ -18427		B1
✓ -18428		B1
✓ -18429		B1
✓ -18430		B1
✓ -18431		B1
✓ -18432		B1
✓ -18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE: C JK 9/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
	9/7/67 VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

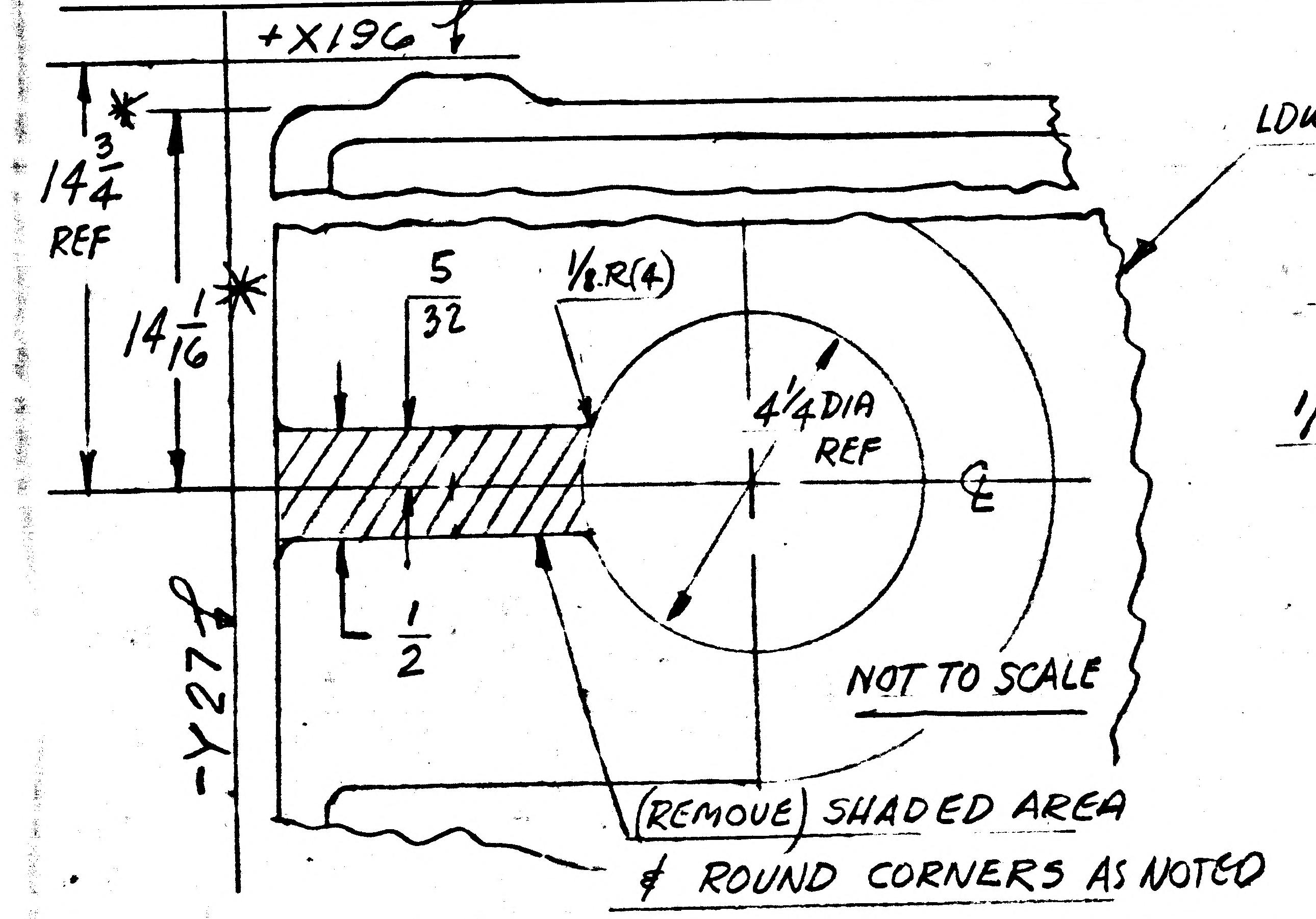
ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18433 | EO NO. -B2
CONTROL INFO NO. LDW280A-8700


+X196 ℄
*
$14\frac{3}{4}$ REF
$14\frac{1}{16}$
*
5/32
1/8 R (4)
4 1/4 DIA REF
℄
1/2
-Y27 ℄
NOT TO SCALE
(REMOVE) SHADED AREA
& ROUND CORNERS AS NOTED

LDW280-18433-13 REF

REWORK -13 BY ADDING 1/2" WIDE SLOT TO 4 1/4 DIA HOLE AS SHOWN

* PARALLEL TO X196 (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1997 OK

5

REASON FOR EO: TO SALVAGE ELECTRICAL WIRE RUNS

DESCRIPTION OF EO: ON -13, IN F/D ADDED 1/2" SLOT

Ⓡ GAEC EO RELEASE: JK 9/11/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM		THRU LM-15 (45)	
LM		LM-4 (34)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓ -13	

APPROVED BY								
DATE	9/8			9/8/67	9/8/67		9/11/67	9-11-67
9/8/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB - DESCENT STAGE - BEAM PANEL L.H. AFT	LDW280-18433	B2

9/9 ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433 ✓	C2	
-18434	C1	
-18435	B4	
-18436	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM –✱

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPP~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[redacted] NO. LEO 280 | EO NO. 1553
CONTROL INFO NO. LDW 280B 8116

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18417	SEE DWG	A3
✓ 420		B3
✓ 424		B5
✓ 425		B5
✓ 429		C2
✓ 430		C5
✓ 431		C3
✓ 432		C2
✓ LDW 280-18433	SEE DWG	C3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 34 & 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: ⓡ WB 8-13-69; 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					N			Hansmann
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-15-69
	VDI							

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1553

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW 280-18434 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-54534	LTA-3D/R(46)	1
LM	LDW 280-54534	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
	LDW 280-54534	LM-6 (36)	1
LM	LDW 280-23534	LTA-3 (13)	1

PART NO. LDW 280-18434-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-54534	LM-5 (35)	1
LM	LDW 280-54534	LM-4 (34)	1

PART NO. LDW 280-18434-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PACKAGE FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO B

PRIM NO.	[illegible]		
207	ME-1	B-4/8/9	OK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1997

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J.CHUPAS 9-1-67	RELIABILITY	
LAYOUT BY	PLANTE		
CHECKED BY	J Kartzman 9-19-67		
GR LEADER			
VEH DES INT	J Stralcoske 9/13/67		
STRUCT	NM WH	PROJ ENGR	WR Boshoff 9/23/67
STRUCT	J	REL GROUP	J Tagliavia 9-27-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-BEAM PLATE
FWD RH

SIZE	CODE IDENT NO.		
B	26512	LDW280-18434	B

SCALE NONE

SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00,1.10 2.00,3.00 4.00.				✓		EO A1 LCD 1997	EO-A1 INITIAL DRAWING RELEASE. PARTS MADE PER E.O.	LTA-3D LM-4 THRU LM-15	NOT REQD	NOT REQD	J.CHUPAS 9-1-67		9-27-67
	2	1.00,1.10 2.00,4.00	8F			✓		EO A2 LCD 1997	ADDED -13, REMOVED -11.	LTA-3D LM-4 THRU LM-15		-11			
	3	1.10 3.00				✓		LEO280-696 LCD 1997	ADDED NOTE 3 REMOVED NOTES (X, Y, Z)	LT-3D LM-4 THRU LM-15	NOT REQD	NOT REQD			
	4								REF EOA1, A2 & A3, ALL NOTES NOT APPLICABLE. ADDED NOTES 1, 2, 3 & 4.				JK		
B	1	3.00	2A						INC LEO 280-706	LTA-3 LM-4 THRU LM-15			J.CHUPAS 8-29-68		
	2	4.00	8F						INC EO B2	LTA-3 LM-4 THRU LM-15					
	3	1.00,2.00 3.00,4.00	5C	B					INC EO B3	LM-6 THRU LM-15					
	4	1.00,2.00 3.00,4.00	5C 2B						INC EO B4	LM-6 THRU LM-15 LTA-3					
	5	1.00,2.00 3.00,4.00	5C 8B	B					INC EO B5						
	6	1.00							INC LEO 280-987 BC	LTA-3D/R				4-26	

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW 280-18434	B
SCALE NONE		SHEET 1.10	

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18434-19	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.063×56×69	SEE NOTE 5	SEE NOTE 5	
								LDW280-18434-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.063×56×69	SEE NOTE 3	SEE NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18434	B

SCALE NONE

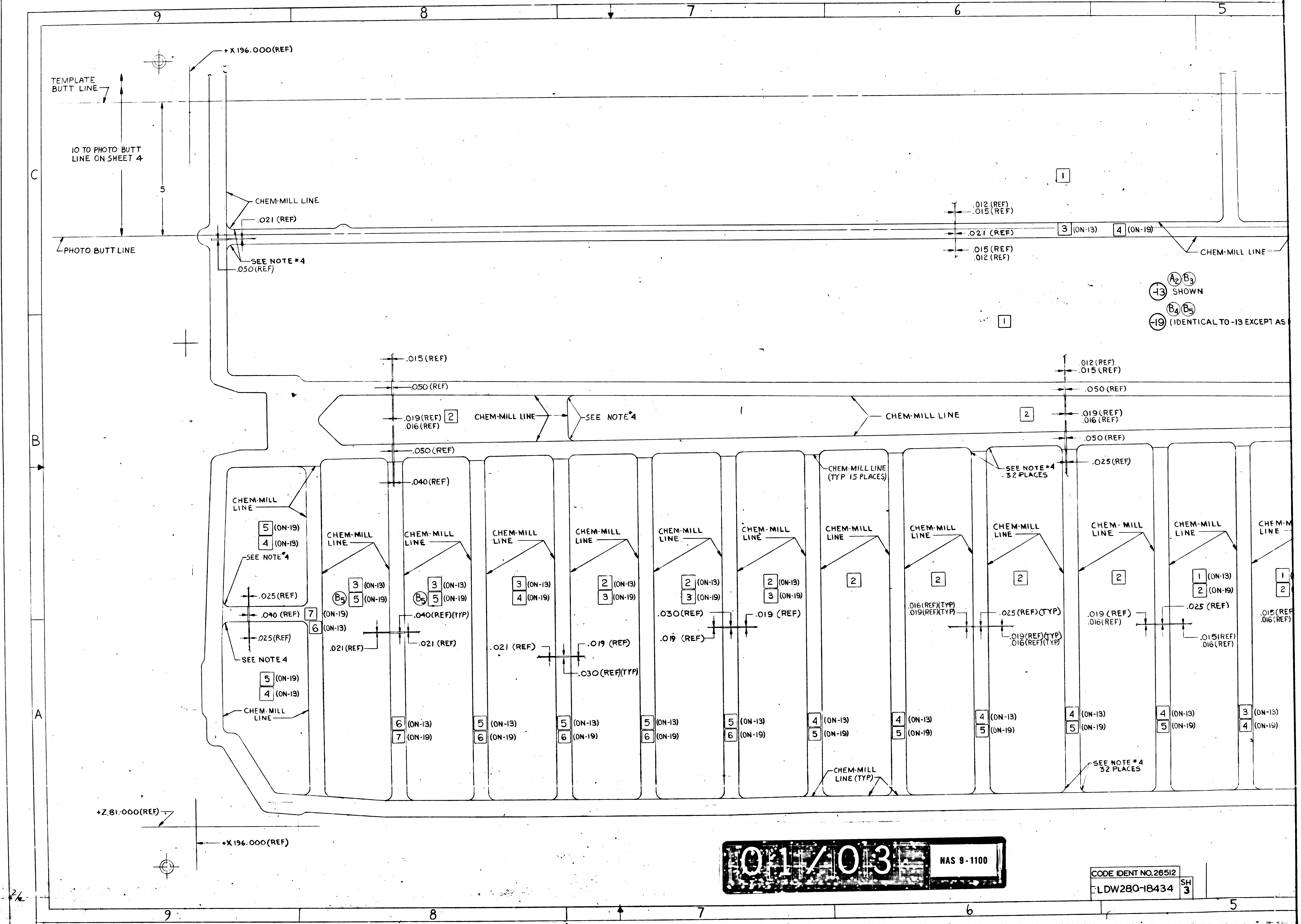
SHEET 2.00

③

ENG 77.2 7-65

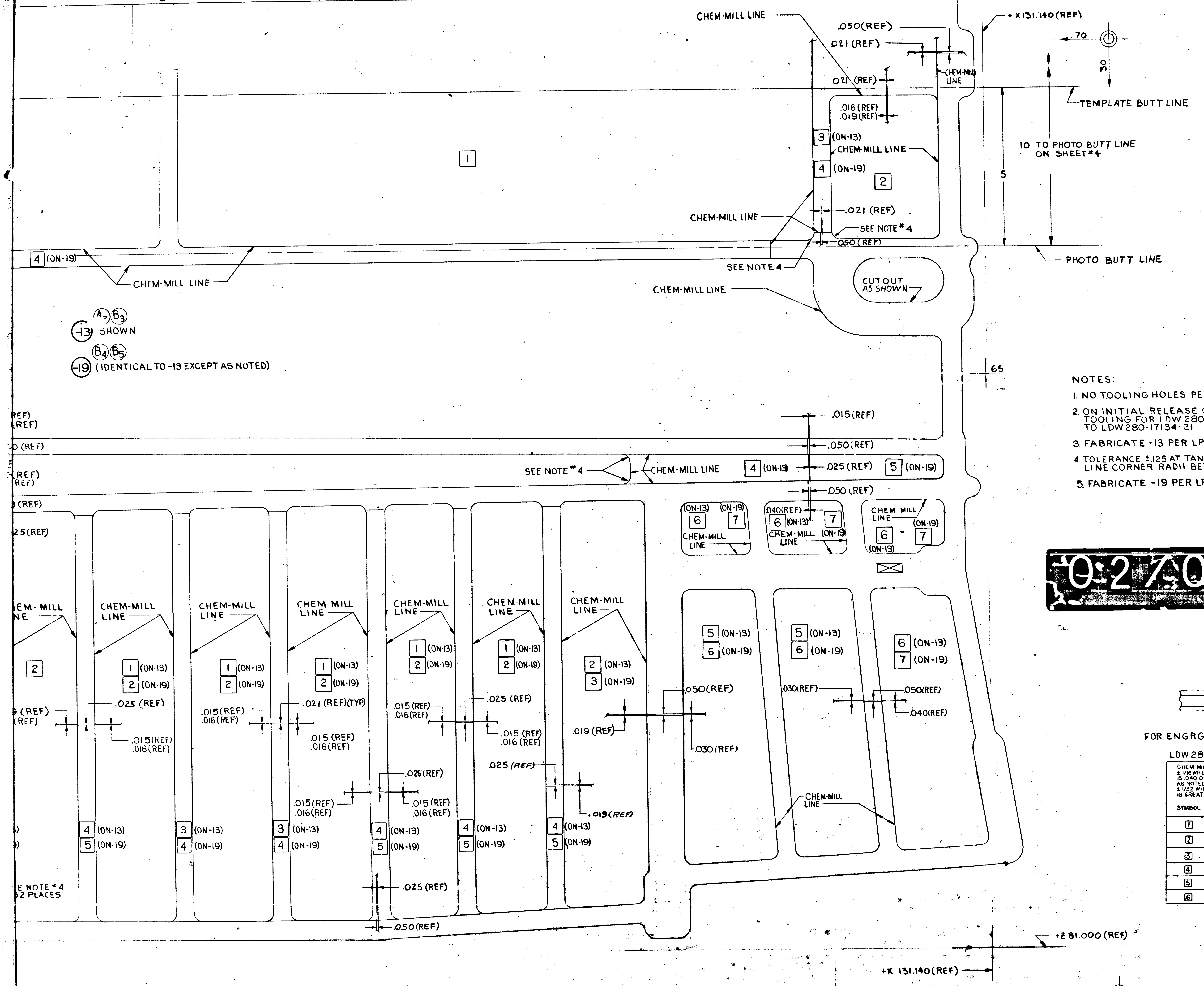
01

NAS 9-1100


9
8
7
6
5
C
B
A
+X 196.000 (REF)
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
CHEM-MILL LINE
.021 (REF)
PHOTO BUTT LINE
SEE NOTE #4
.050 (REF)
1
.012 (REF)
.015 (REF)
.021 (REF)
.015 (REF)
.012 (REF)
3 (ON-13)
4 (ON-19)
CHEM-MILL LINE
A2 B3
-13 SHOWN
B4 B5
-19 (IDENTICAL TO -13 EXCEPT AS
.015 (REF)
.050 (REF)
.019 (REF)
.016 (REF)
2
CHEM-MILL LINE
SEE NOTE #4
CHEM-MILL LINE
.012 (REF)
.015 (REF)
.050 (REF)
.019 (REF)
.016 (REF)
.050 (REF)
.050 (REF)
.040 (REF)
.025 (REF)
CHEM-MILL LINE (TYP 15 PLACES)
SEE NOTE #4 32 PLACES
CHEM-MILL LINE
5 (ON-19)
4 (ON-13)
SEE NOTE #4
.025 (REF)
.040 (REF)
7 (ON-19)
6 (ON-13)
.025 (REF)
SEE NOTE 4
5 (ON-19)
4 (ON-13)
CHEM-MILL LINE
B5
3 (ON-13)
5 (ON-19)
.040 (REF) (TYP)
.021 (REF)
.021 (REF)
6 (ON-13)
7 (ON-19)
3 (ON-13)
4 (ON-19)
.021 (REF)
5 (ON-13)
6 (ON-19)
2 (ON-13)
3 (ON-19)
.019 (REF)
.030 (REF) (TYP)
.030 (REF)
.019 (REF)
2 (ON-19)
3 (ON-19)
.019 (REF)
.016 (REF) (TYP)
.019 (REF) (TYP)
.025 (REF) (TYP)
.019 (REF) (TYP)
.016 (REF) (TYP)
.019 (REF)
.016 (REF)
1 (ON-13)
2 (ON-19)
.025 (REF)
.015 (REF)
.016 (REF)
.015 (REF)
.016 (REF)
4 (ON-13)
5 (ON-19)
3 (ON-13)
4 (ON-19)
CHEM-MILL LINE (TYP)
SEE NOTE #4 32 PLACES
+Z 81.000 (REF)
+X 196.000 (REF)

01/03 NAS 9-1100

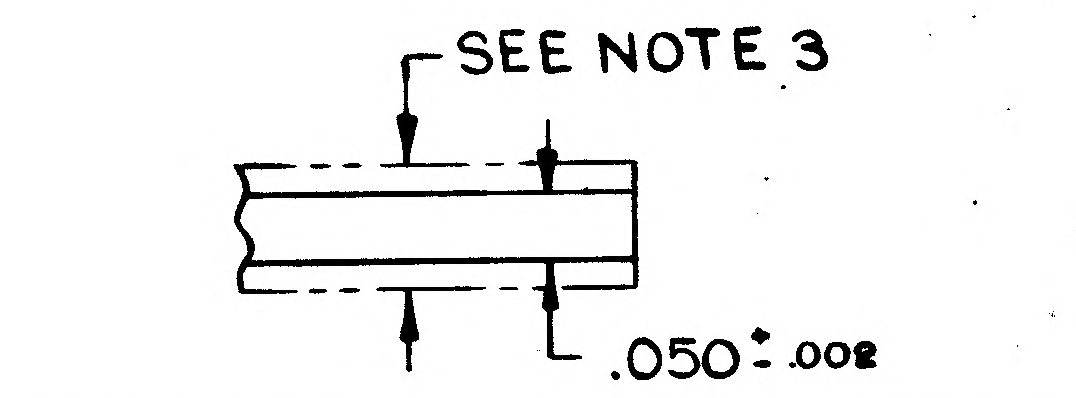
CODE IDENT NO. 26512
LDW280-18434 SH 3


CHEM-MILL LINE
.050(REF)
.021(REF)
.021 (REF)
.016(REF)
.019(REF)
+X131.140(REF)
70
30
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET #4
5
PHOTO BUTT LINE
3 (ON-13)
4 (ON-19)
1
2
SEE NOTE #4
SEE NOTE 4
4 (ON-19)
CUTOUT AS SHOWN
-13 SHOWN
-19 (IDENTICAL TO -13 EXCEPT AS NOTED)
65
.015(REF)
.050(REF)
SEE NOTE #4
4 (ON-13)
.025(REF)
5 (ON-19)
6 (ON-13)
7 (ON-19)
.040(REF)
1 (ON-13)
2 (ON-19)
2 (ON-13)
3 (ON-19)
4 (ON-13)
5 (ON-19)
3 (ON-13)
4 (ON-19)
5 (ON-13)
6 (ON-19)
6 (ON-13)
7 (ON-19)
.015(REF)
.016(REF)
.021 (REF)(TYP)
.025 (REF)
.019 (REF)
.030(REF)
.050(REF)
.040(REF)
SEE NOTE #4 2 PLACES
+Z 81.000 (REF)
+X 131.140(REF)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING TOOLING FOR LDW 280-18434-13 IS SIMILAR TO LDW 280-17134-21
3. FABRICATE -13 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
5. FABRICATE -19 PER LPC 280-43.

02703 NAS 9-1100


SEE NOTE 3
.050 ±.002

FOR ENGRG REF ONLY - NO SCALE

LDW 280-18434-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.035(REF)
2	$.019^{+.003}_{-.002}$	.031(REF)
3	$.021^{+.003}_{-.002}$	.029(REF)
4	.025 ±.003	.025(REF)
5	$.030^{+.004}_{-.003}$	.020(REF)
6	.040 ±.004	.010(REF)

LDW 280-18434-19

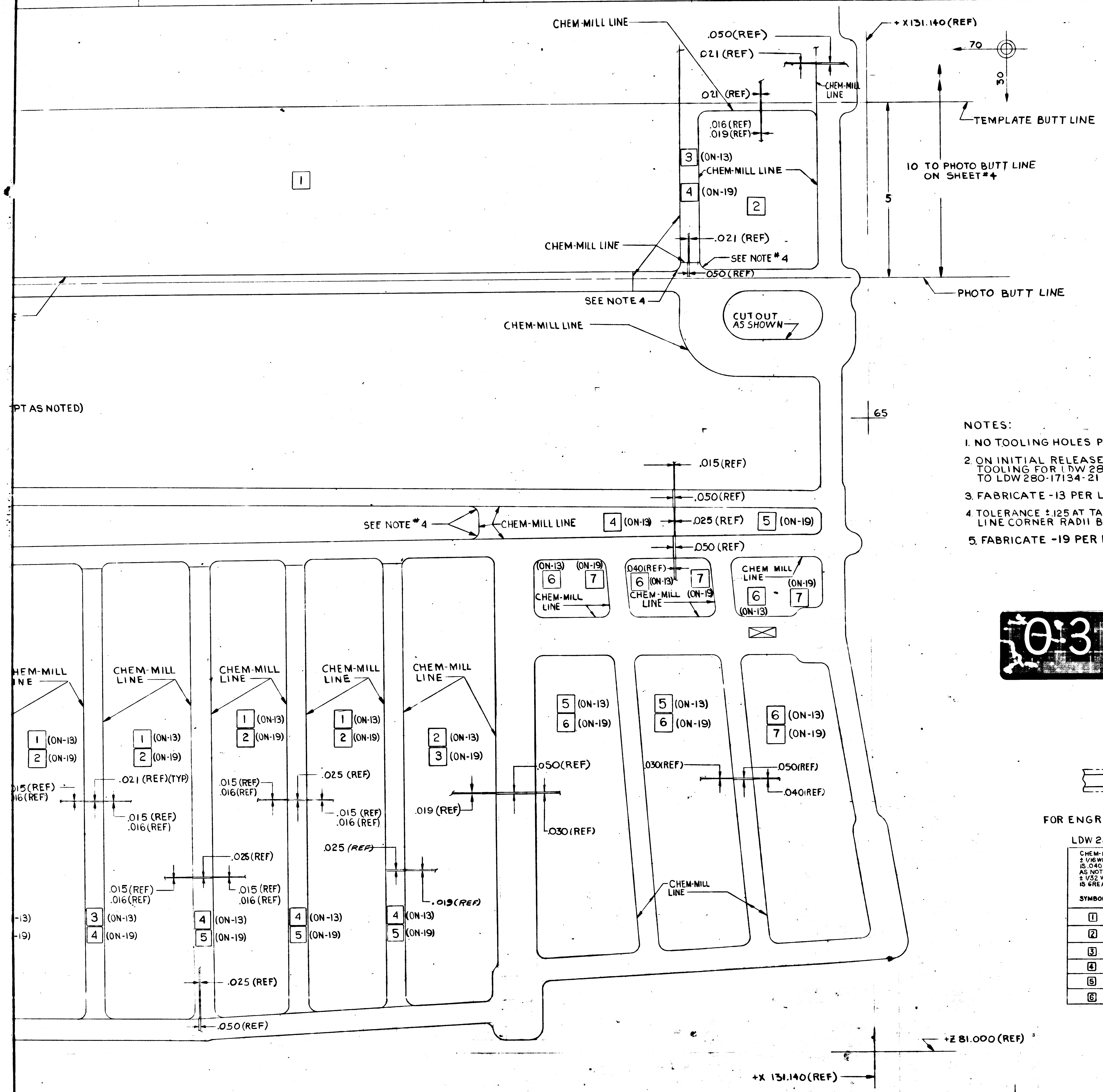
CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.038 (REF)
2	$.016^{+.003}_{-.002}$	.034 (REF)
3	$.019^{+.003}_{-.002}$	.031 (REF)
4	.021 ±.003	.029 (REF)
5	$.025^{+.004}_{-.003}$	.025 (REF)
6	.030 ±.004	.020 (REF)
7	$.040^{+.005}_{-.004}$	.010 (REF)

GRUMMAN AIRCRAFT ENGR'G CORP.
LM
SIZE J CODE IDENT NO. 26512 LDW2
MODEL OR END ITEM SCALE FULL
FOR PHOT

DE IDENT NO. 26512
LDW280-18434 SH 3

TRAM
D. 7.

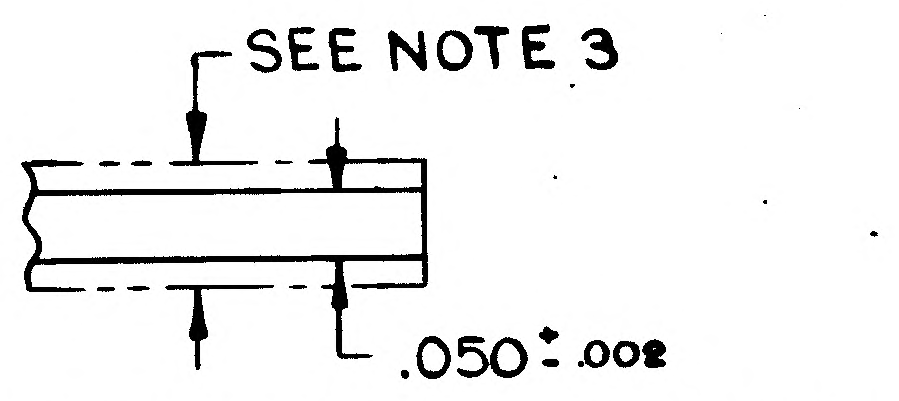


4
3
2
CHEM-MILL LINE
.050(REF)
.021(REF)
.021 (REF)
CHEM-MILL LINE
+X131.140(REF)
70
30
TEMPLATE BUTT LINE
.016(REF)
.019(REF)
1
3 (ON-13)
CHEM-MILL LINE
4 (ON-19)
2
10 TO PHOTO BUTT LINE ON SHEET #4
5
CHEM-MILL LINE
.021 (REF)
SEE NOTE #4
.050(REF)
PHOTO BUTT LINE
SEE NOTE 4
CHEM-MILL LINE
CUTOUT AS SHOWN
PT AS NOTED)
65
.015(REF)
.050(REF)
SEE NOTE #4
CHEM-MILL LINE
4 (ON-13)
.025 (REF)
5 (ON-19)
.050 (REF)
(ON-13) (ON-19)
6 7
CHEM-MILL LINE
.040(REF)
6 (ON-13)
7
CHEM-MILL LINE (ON-19)
CHEM MILL LINE
(ON-19)
6 7
(ON-13)
CHEM-MILL LINE
1 (ON-13)
2 (ON-19)
.015(REF)
.016(REF)
.021 (REF)(TYP)
.015 (REF)
.016(REF)
3 (ON-13)
4 (ON-19)
4 (ON-13)
5 (ON-19)
.025 (REF)
.050(REF)
.025 (REF)
.015 (REF)
.016(REF)
.015 (REF)
.016 (REF)
5 (ON-13)
6 (ON-19)
6 (ON-13)
7 (ON-19)
.050(REF)
.030(REF)
.050(REF)
.040(REF)
.019 (REF)
.030 (REF)
.025 (REF)
.019 (REF)
2 (ON-13)
3 (ON-19)
CHEM-MILL LINE
+Z 81.000 (REF)
+X 131.140(REF)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING TOOLING FOR LDW 280-18434-13 IS SIMILAR TO LDW 280-17134-21
3. FABRICATE -13 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
5. FABRICATE -19 PER LPC 280-43.

03703 NAS 9-1100



SEE NOTE 3
.050±.002

FOR ENGRG REF ONLY - NO SCALE

LDW 280-18434-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.035(REF)
2	$.019^{+.003}_{-.002}$	.031(REF)
3	$.021^{+.003}_{-.002}$	.029(REF)
4	.025 ± .003	.025(REF)
5	$.030^{+.004}_{-.003}$	.020(REF)
6	.040 ± .004	.010(REF)

LDW 280-18434-19

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.038 (REF)
2	$.016^{+.003}_{-.002}$	.034 (REF)
3	$.019^{+.003}_{-.002}$	.031 (REF)
4	.021 ± .003	.029 (REF)
5	$.025^{+.004}_{-.003}$	.025 (REF)
6	.030 ± .004	.020 (REF)
7	$.040^{+.005}_{-.004}$	.010 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 107) = 27. SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 7. SQ. FT.
PRINT TRIM LINE

C
B
A

LDW280-18434 B

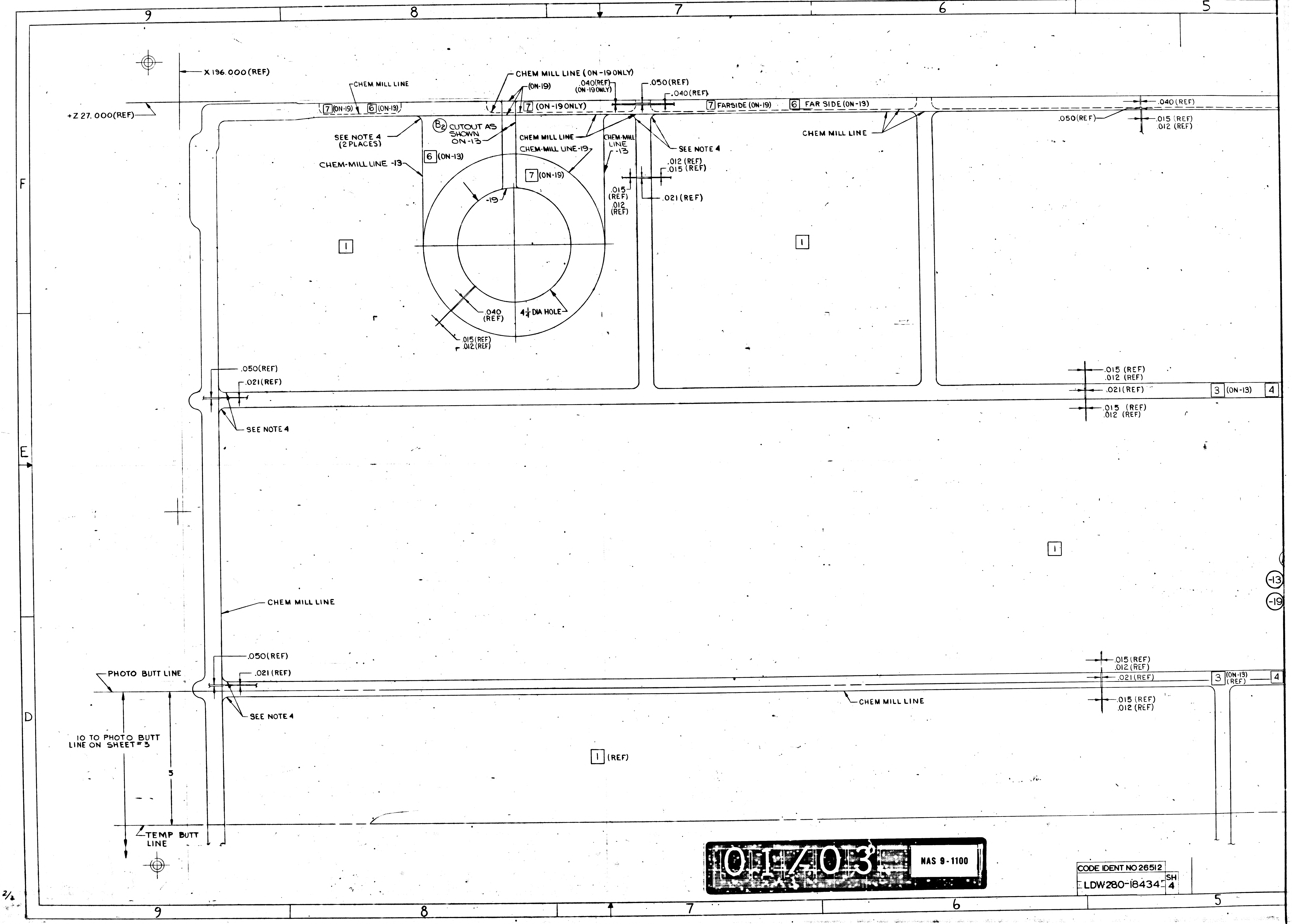
LDW280-18434 B

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

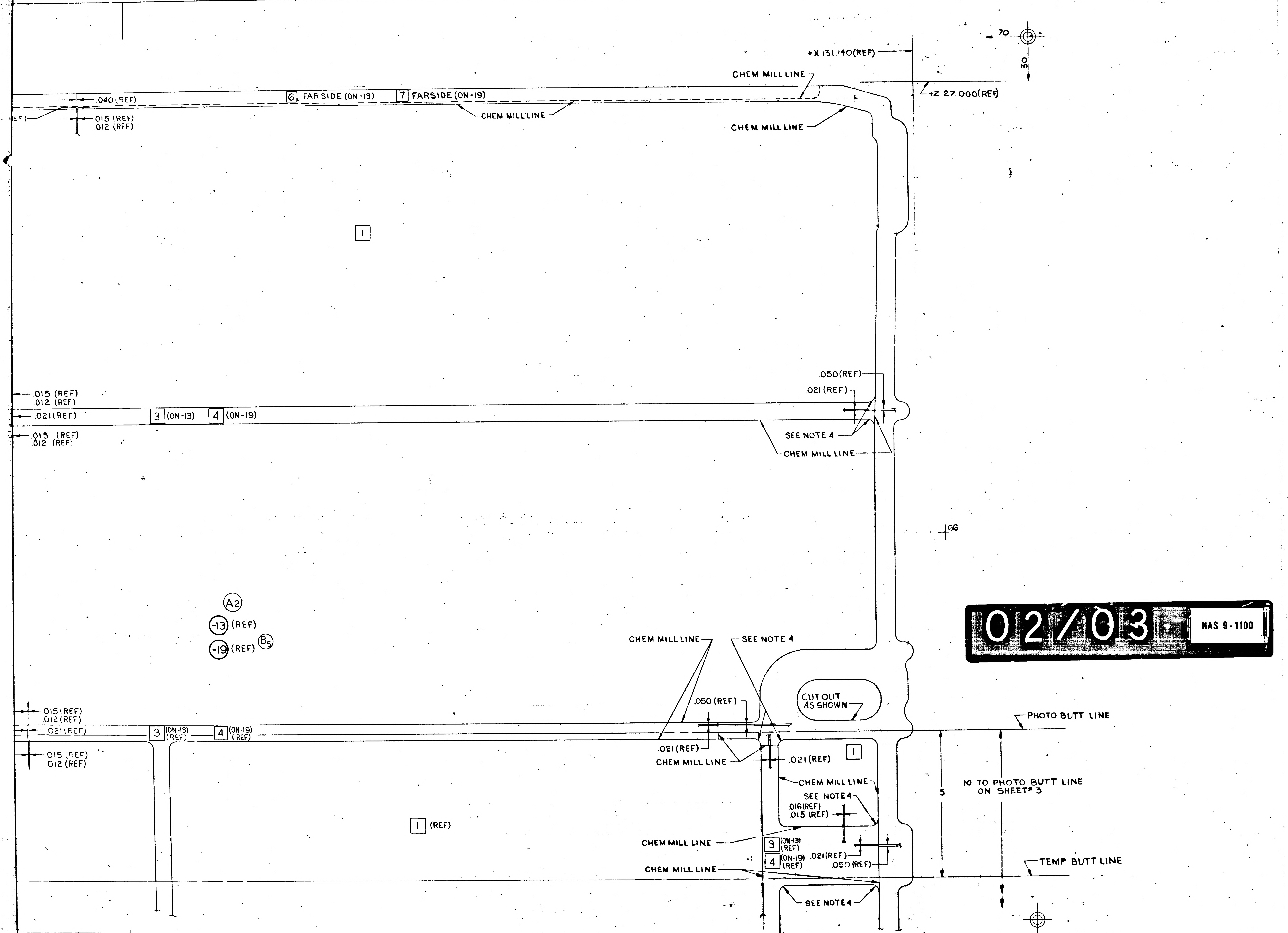
MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18434	B
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64



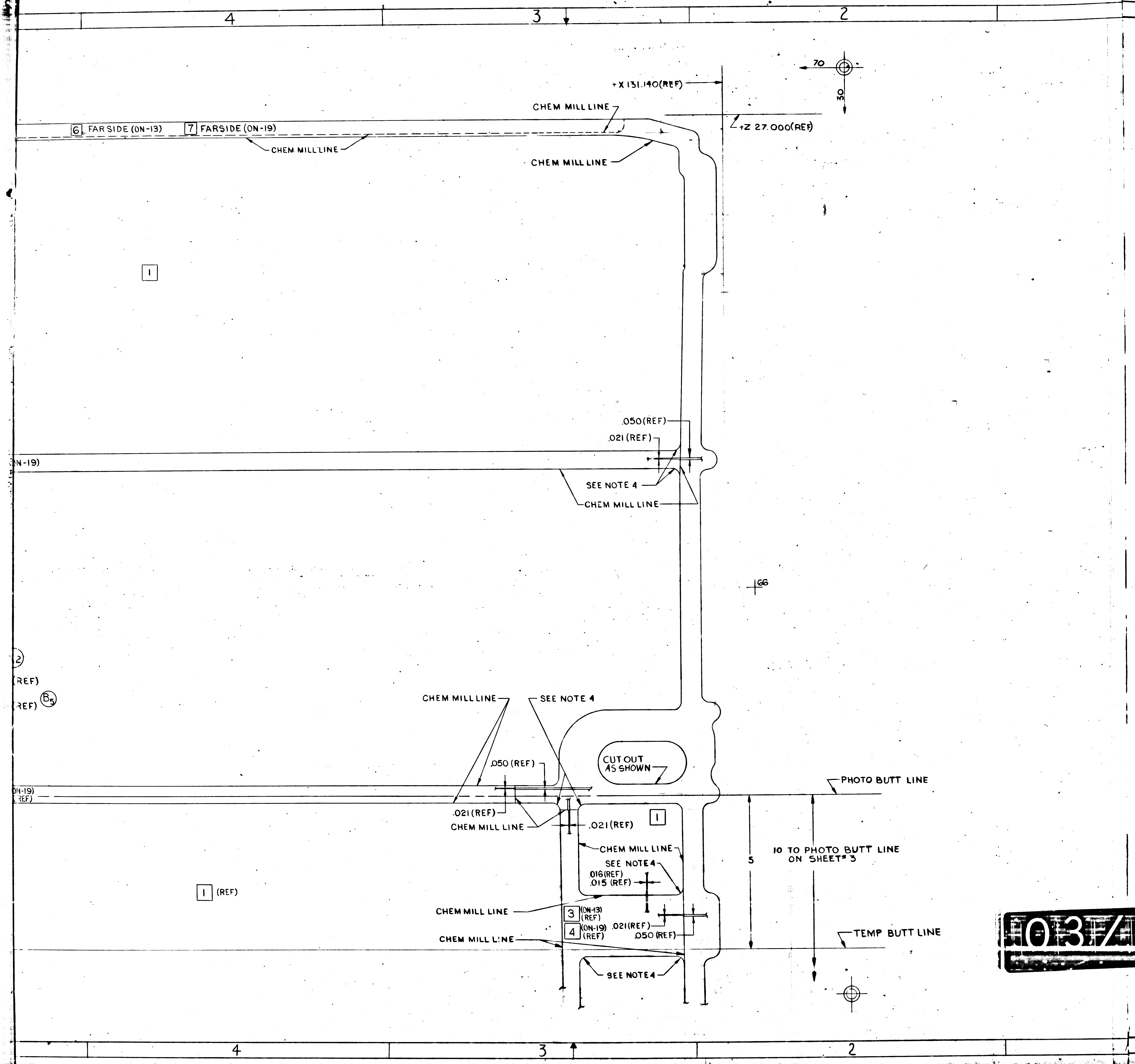
9
8
7
6
5
F
E
D
X 196.000 (REF)
+Z 27.000 (REF)
CHEM MILL LINE
7 (ON-19)
6 (ON-13)
CHEM MILL LINE (ON-19 ONLY)
(ON-19)
7 (ON-19 ONLY)
.040 (REF) (ON-19 ONLY)
.050 (REF)
.040 (REF)
7 FARSIDE (ON-19)
6 FAR SIDE (ON-13)
CHEM MILL LINE
.040 (REF)
.050 (REF)
.015 (REF)
.012 (REF)
SEE NOTE 4 (2 PLACES)
B2 CUTOUT AS SHOWN ON-13
CHEM MILL LINE
CHEM-MILL LINE -13
CHEM-MILL LINE -19
SEE NOTE 4
6 (ON-13)
CHEM-MILL LINE -13
7 (ON-19)
.012 (REF)
.015 (REF)
.015 (REF)
.012 (REF)
.021 (REF)
-19
1
1
.040 (REF)
4¼ DIA HOLE
.015 (REF)
.012 (REF)
.050 (REF)
.021 (REF)
SEE NOTE 4
.015 (REF)
.012 (REF)
.021 (REF)
3 (ON-13)
4
.015 (REF)
.012 (REF)
1
-13
-19
CHEM MILL LINE
.050 (REF)
.021 (REF)
PHOTO BUTT LINE
SEE NOTE 4
.015 (REF)
.012 (REF)
.021 (REF)
3 (ON-13) (REF)
4
CHEM MILL LINE
.015 (REF)
.012 (REF)
10 TO PHOTO BUTT LINE ON SHEET #3
5
1 (REF)
TEMP BUTT LINE
2/2
01/403
NAS 9-1100
CODE IDENT NO 26512
LDW280-18434
SH 4


+X 131.140(REF)
70
30
+Z 27.000(REF)
CHEM MILL LINE
.040(REF)
6 FAR SIDE (ON-13)
7 FARSIDE (ON-19)
CHEM MILL LINE
CHEM MILL LINE
.015 (REF)
.012 (REF)
1
.050(REF)
.021(REF)
.015 (REF)
.012 (REF)
.021(REF)
3 (ON-13)
4 (ON-19)
.015 (REF)
.012 (REF)
SEE NOTE 4
CHEM MILL LINE
G6
A2
-13 (REF)
-19 (REF)
B5
CHEM MILL LINE
SEE NOTE 4
.050 (REF)
CUT OUT AS SHOWN
PHOTO BUTT LINE
.015(REF)
.012(REF)
.021(REF)
3 (ON-13) (REF)
4 (ON-19) (REF)
.015 (REF)
.012 (REF)
.021(REF)
CHEM MILL LINE
.021 (REF)
1
CHEM MILL LINE
SEE NOTE 4
.016(REF)
.015 (REF)
10 TO PHOTO BUTT LINE ON SHEET# 3
5
1 (REF)
CHEM MILL LINE
3 (ON-13) (REF)
4 (ON-19) (REF)
.021(REF)
.050 (REF)
CHEM MILL LINE
TEMP BUTT LINE
SEE NOTE 4

02/03 NAS 9-1100

DE IDENT NO 26512
DW280-18434 SH 4

GRUMMAN AIRCRAFT ENGRG CO
LM
SIZE J
CODE IDENT NO. 26512
LDW
MODEL OR END ITEM
SCALE FULL
FOR PHOT


4
3
2
70
30
+X 131.140(REF)
CHEM MILL LINE
6 FAR SIDE (ON-13)
7 FARSIDE (ON-19)
CHEM MILL LINE
CHEM MILL LINE
+Z 27.000(REF)
1
.050(REF)
.021 (REF)
(ON-19)
SEE NOTE 4
CHEM MILL LINE
66
2
(REF)
(REF)
B5
CHEM MILL LINE
SEE NOTE 4
CUT OUT AS SHOWN
.050 (REF)
PHOTO BUTT LINE
(ON-19)
(REF)
.021 (REF)
CHEM MILL LINE
.021 (REF)
1
CHEM MILL LINE
10 TO PHOTO BUTT LINE ON SHEET# 3
5
SEE NOTE 4
.016(REF)
.015 (REF)
1 (REF)
CHEM MILL LINE
3 (ON-13) (REF)
4 (ON-19) (REF)
.021(REF)
.050 (REF)
CHEM MILL LINE
TEMP BUTT LINE
SEE NOTE 4
4
3
2

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 107) = 27. SQ. FT.

½ SIZE SHEET AREA (¼ OF FULL) = 7. SQ. FT.

PRINT TRIM LINE

F

E

LDW280-18434 B

LDW280-18434 B

D

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18434	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425	↑	B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280 -18443	↓	B1
LDW280 -18444	SEE DWG	B1

01

NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1977 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY									
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

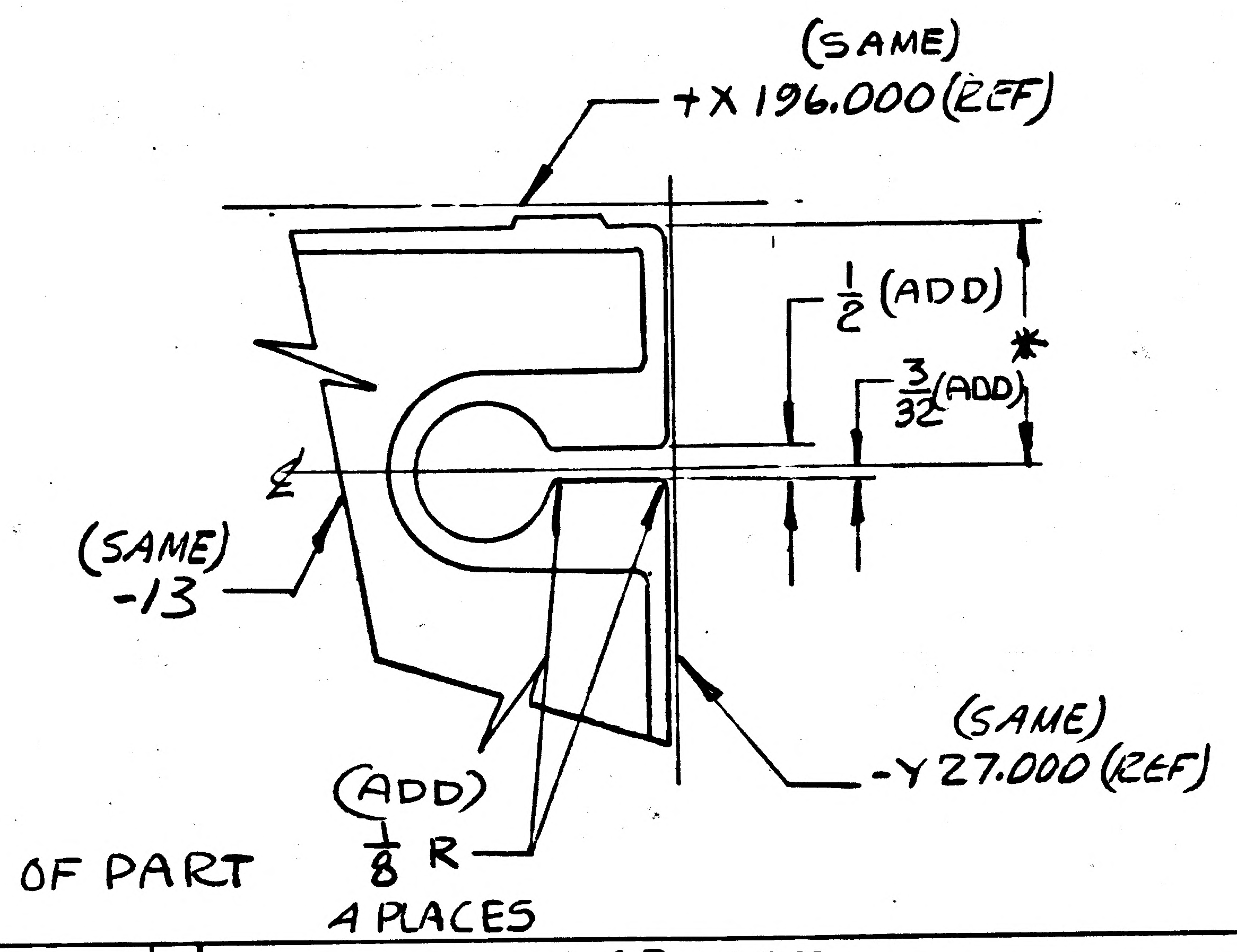
ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18434		EO NO. B2	
CONTROL INFO NO. LDW280A8701			

REVISE -13 AS SHOWN



* PARALLEL WITH EDGE OF PART

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1997	3

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC EO RELEASE
SALVAGE OF WIRE RUNS	ADDED SLOT CUTOUT FOR -13	JK 9/9/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)
		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	9/8/67			9/8/67	9/8/67		9/1	9/9/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE BEAM PANEL FWD R.H.	LDW280-18434	B2

9/9 ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

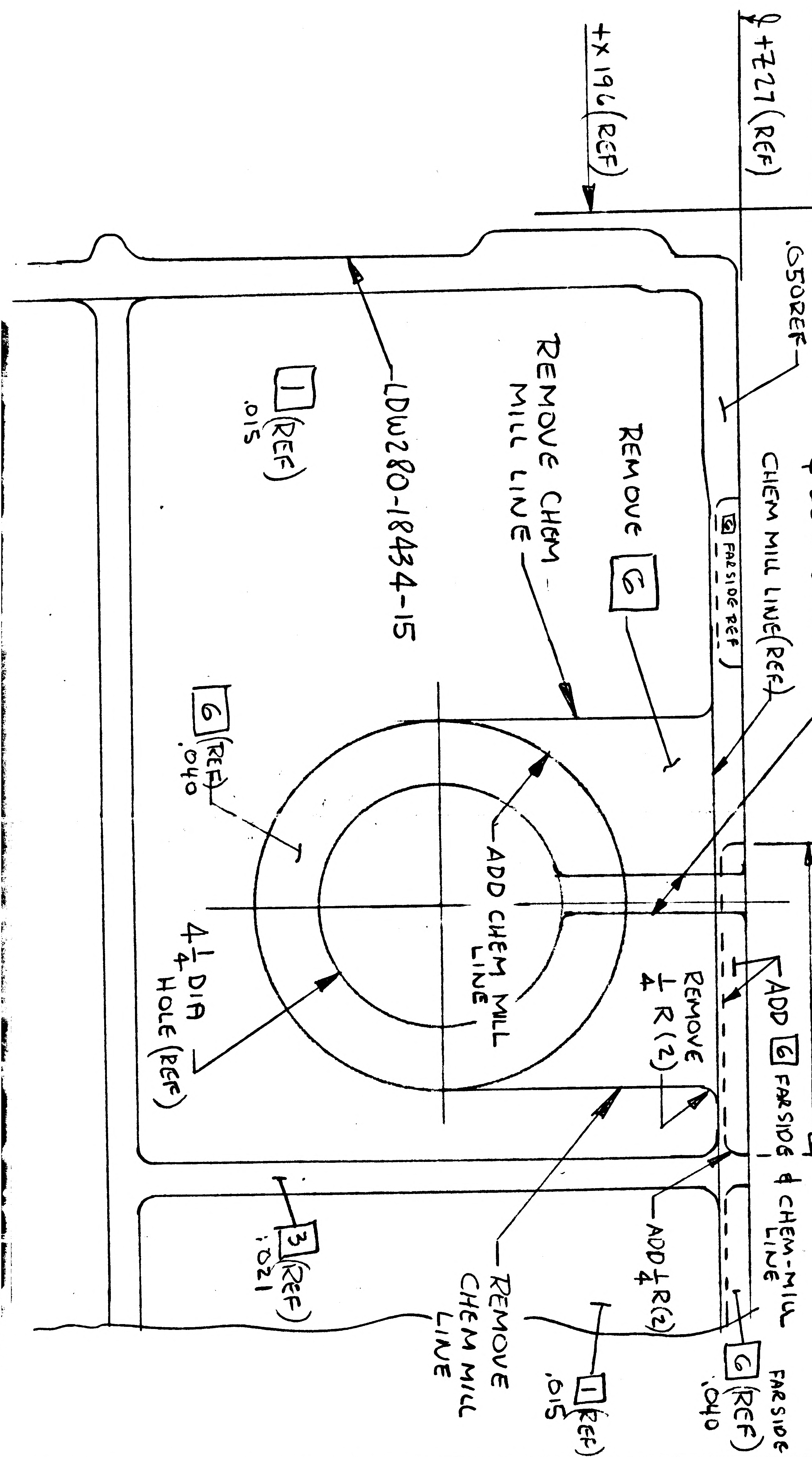
ENO 33.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18434 | EO NO. B3
CONTROL INFO NO. LDW280A9491

EO NUMBER No.
UPPER RH WAS
INCORRECTLY
SHOWN AS B2

ADD -15 IDENT TO -13 EXCEPT AS NOTED
-15 EFF LM-6(36) THRU LM-15(45) N/A LDW280-23534
1 REQD/MOD
REMOVE LM-6(36) THRU LM-15(45) REQMTS FROM -13 MOD/BLK



+X 196 (REF)
℄ +Z227 (REF)
.050 REF
REMOVE SLOT CUTOUT, 1/8 R (4), ℄ LOC DIM
CHEM MILL LINE (REF)
6 FARSIDE REF
5 5/8
ADD 6 FARSIDE ℄ CHEM-MILL LINE
FARSIDE 6 (REF) .040
REMOVE 6
REMOVE 1/4 R (2)
ADD 1/4 R (2)
1 (REF) .015
REMOVE CHEM MILL LINE
ADD CHEM MILL LINE
REMOVE CHEM MILL LINE
LDW280-18434-15
1 (REF) .015
6 (REF) .040
4 1/4 DIA HOLE (REF)
3 (REF) .021

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 2183	3

REASON FOR EO: REMOVE ELEC HARNESS SLOT FROM WEB

DESCRIPTION OF EO: ADDED -15
REMOVED LM-6(36) THRU LM-15(45) REQMTS FROM -13

Ⓡ GAEC EO RELEASE: JK 10/2/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-6(36) THRU LM-15(45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓			✓	APPROVED BY					W/W		WRB	
				DATE	10/2/67			10/2/67	10/5/67		10/5/67	10/6/67
				8	VDI							

PRIORITY: C
DRAWING TITLE: WEB-D/S BEAM PANEL FWD - RH
DRAWING NO.: LDW280-18434
EO NO.: B3

10/13
ISSUED BY J. LANG / J. STRAKOSCH X1153 10/5/67 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

A

ENG 32.1 REV 3-65

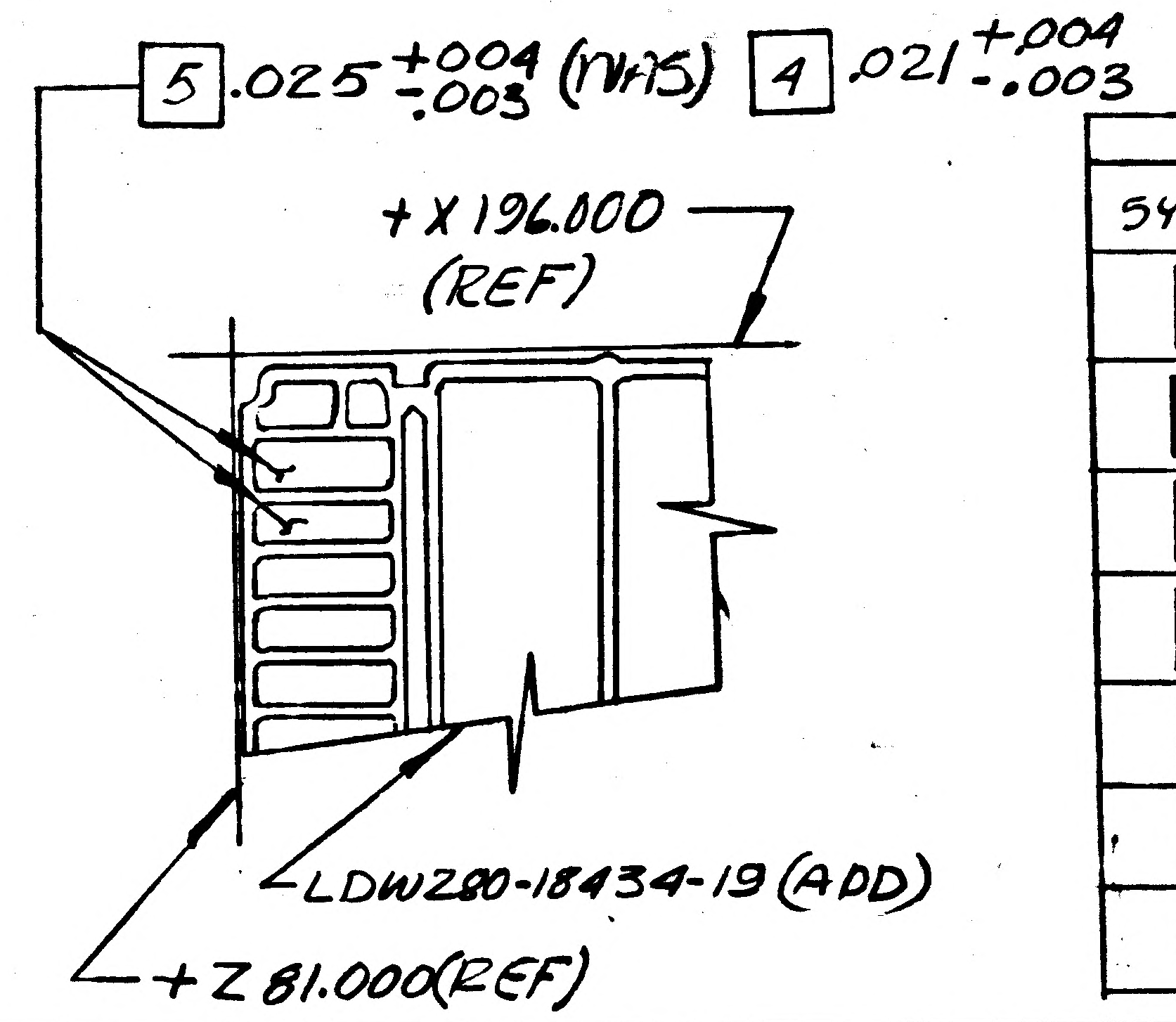
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINE IG ORDER

DWG. NO. LDW280-18434 | EO NO. B5
CONTROL INFO NO. LDW280A9634

ADD -19 IDENTICAL TO -17 EXCEPT AS NOTED.
REMOVE -17 & LTA-3(13), LM-6(36) THRU LM-15(45) REQMTS

(15).

-19	
SYMBOL	THICKNESS AFTER C/M
1	$.012^{+.003}_{-.002}$
2	$.016^{+.003}_{-.002}$
3	$.019^{+.003}_{-.002}$
4	.021 ± .003
5	$.025^{+.004}_{-.003}$
6	.030 ± .004
7	$.040^{+.005}_{-.004}$



(WAS)

-17	
SYMBOL	THICKNESS AFTER C/M
1	$.012^{+.003}_{-.002}$
2	$.016^{+.003}_{-.002}$
3	.019 ± .003
4	$.021^{+.004}_{-.003}$
5	.025 ± .004
6	$.030^{+.005}_{-.004}$
7	.040 ± .005

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2220 3

REASON FOR EO: REVISE MIN WEB GAGE

DESCRIPTION OF EO: ADDED -19 REMOVED -17 & EFF LTA 3(13) LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: VK 10/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓-17
APPROVED BY
DATE 10/18/67 | 10/18/67 | 10/18 | 10/18 | 10/67
B | VD1 | SUPPORT | RELIAB. GROUP | GROUP LEADER | STRESS GROUP | LIAISON ENGRG | PROJ ENGRG

PRIORITY: C
DRAWING TITLE: WEB- DESCENT STAGE BEAM PANEL FWD R.H.
DRAWING NO.: LDW280-18434
EO NO.: B5

10/20
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO 1376
CONTROL INFO NO. LDW280B7434	

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433 ✓	C2	
-18434 ✓	C1	
-18435	B4	
-18436	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —✱

GAEC EO RELEASE: JK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18434

EO NO. C3

CONTROL INFO NO. LM-2-5677

FOR -19
IN MOD/BLK DELETE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994	(2)

REASON FOR EO: REDESIGN FOR LMMP

DESCRIPTION OF EO: FOR -19, IN MOD/BLK DELETED LM-10(40) THRU LM-14(44) & LTA-11(23) EFFECTIVITY

R GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44) LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓			✓	APPROVED BY					KC		
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	11/12/69			11/14/69	11/5/69	11/5/69	11/5/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C

DRAWING TITLE: WEB~DESCENT STAGE BEAM PLATE~FWD RIGHT HAND

DRAWING NO. LDW280-18434

EO NO. C3

ISSUED BY LIAISON J. MALONEY 11/5/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18435 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23535	LM-15(45)	1
		LM·14(44)	1
		LM-13(43)	1
		LM-12-(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM·9(39)	1
		LM-8-(38)	1
		LM-7 (37)	1
		LM-6-(36)	1
		LM-5(35)	1
		LM-4 (34	1
LM	LDW280-23535	LTA-3D(13)	1

PART NO. LDW280-18435-13

GAEC SCH NO. 51

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -13

GRUMMAN REL INFO			
PRIM NO.	JK(001)		
207	MP-16A 1/24/		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1997

CONTRACT NO. NAS-9-1100

WORK PKG FUNCTION NO. 110

LINE ITEM

DOCUMENTATION TYPE II (5)

DRAWN BY	G.ENGEL 10 JAN 68	RELIABILITY	
LAYOUT BY	PLANTE	SUPPORT	
CHECKED BY	WCG 1/19/68	STRESS	R.A.H. 8/17/67
GR LEADER			
VEH DES INT	J. PUSATERI, 8/16/67		
STRUCTURES		PROJ ENGR	W.R.B. 8-17-67
STRUCTURES		REL GROUP	J.R.T. 8-18-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - BEAM PANEL
ENGINE COMPARTMENT - R.H.

SIZE	CODE IDENT NO.		
B	26512	LDW280-18435	A

SCALE NONE SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00 4.00				✓		EO A1 LCD 1997	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LM-4 (34) THRU LM-15 (45) LTA-3 (13)	NOT	REQ'D	G ENGEL 10 JAN. 1968		
	2	3.00 1.10				✓		LEO 280-696 LCD-1997	ADDED NOTE 7, REMOVED NOTE 1, 3, 4, 5 & 6		NOT	REQ'D			
	3	1.00 2.00 3.00				✓		LEO 280-698 LCD 1997	ADDED -13, REMOVED -11			✓			
	4	1.10, 2.00 & 3.00				✓		LCD 1997	REF EO A1, EO A2 (LEO280-696) & EO A3 (LEO280-693) ALL NOTES NOT APPLICABLE. ADDED NOTES #1, 2, 3 & 4. WCG		NOT	REQD		1/10/68	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	SUPPORT	STRESS	PROJ ENGR		
A	1-20-68	1/20/68	WB 1-22-68								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18435	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18435-13	S	WEB	AL ALY SHT	QQ-A-250/12	7075-T6	.050x57x 67 1/8	SEE NOTE #4		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

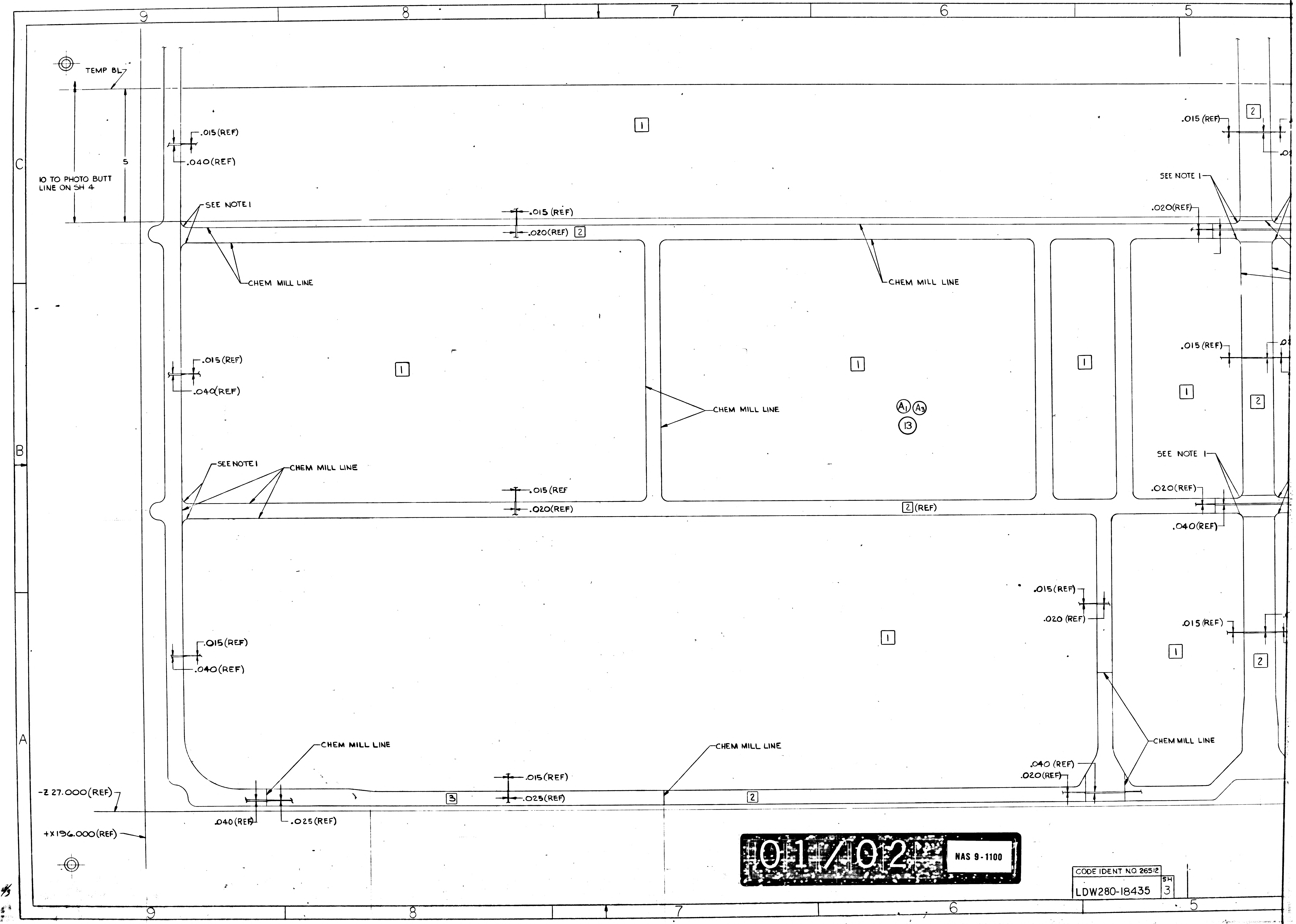
SIZE	CODE IDENT NO.		
B	26512	LDW280-18435	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMP BL
5
10 TO PHOTO BUTT LINE ON SH 4
.015(REF)
.040(REF)
SEE NOTE 1
.015 (REF)
.020(REF) 2
CHEM MILL LINE
1
2
SEE NOTE 1
.020(REF)
.015(REF)
.040(REF)
CHEM MILL LINE
A1 A3
13
.015 (REF
.020(REF)
2 (REF)
.040(REF)
.015(REF)
.020 (REF)
.015(REF)
.040(REF)
CHEM MILL LINE
.040 (REF)
.020(REF)
-Z 27.000(REF)
+X196.000(REF)
.040(REF)
.025(REF)
3
.015(REF)
.025(REF)
CHEM MILL LINE

01/02

NAS 9-1100

CODE IDENT NO 26512

LDW280-18435

SH 3

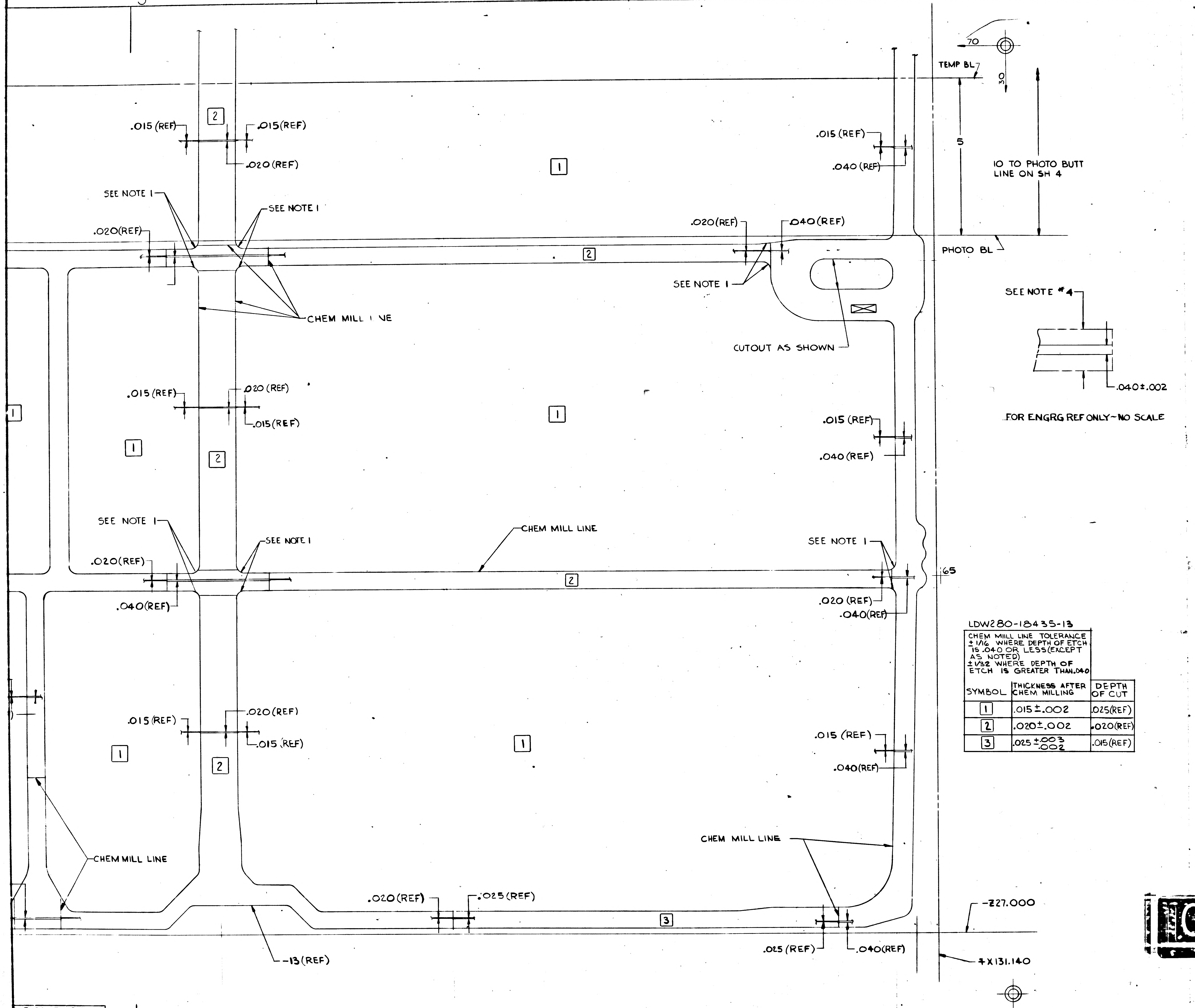
NOTES:
1. TOLERANCE ±.125 AT THE TANGENCY POINTS OF CHEM MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
2. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.
3. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18435-13 IS SIMILAR TO -LDW280-17635-13.
4. FABRICATE WEB PER LPC280-43.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99)- 25. SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)- 6.5 SQ. FT.

PRINT TRIM LINE


5
4
3
2
1
C
B
A
70
30
TEMP BL
5
10 TO PHOTO BUTT LINE ON SH 4
PHOTO BL
.015 (REF)
.015 (REF)
.020 (REF)
SEE NOTE 1
SEE NOTE 1
.020 (REF)
.020 (REF)
.040 (REF)
.015 (REF)
.040 (REF)
SEE NOTE 1
CHEM MILL LINE
CUTOUT AS SHOWN
SEE NOTE #4
.040±.002
FOR ENGRG REF ONLY - NO SCALE
.015 (REF)
.020 (REF)
.015 (REF)
.015 (REF)
.040 (REF)
SEE NOTE 1
SEE NOTE 1
CHEM MILL LINE
SEE NOTE 1
.020 (REF)
.040 (REF)
.020 (REF)
.040 (REF)
65
.015 (REF)
.020 (REF)
.015 (REF)
.015 (REF)
.040 (REF)
CHEM MILL LINE
CHEM MILL LINE
.020 (REF)
.025 (REF)
-227.000
-13 (REF)
.025 (REF)
.040 (REF)
X 131.140
1
2
3

LDW280-18435-13

CHEM MIILL LINE TOLERANCE ± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM MILLING	DEPTH OF CUT
1	.015 ± .002	.025 (REF)
2	.020 ± .002	.020 (REF)
3	$.025 {}^{+.003}_{-.002}$	.015 (REF)

02/02 NAS 9-1100

LDW280-18435 A

LDW280-18435 A

R-5818

CODE IDENT NO 26512
LDW280-18435 SH 3

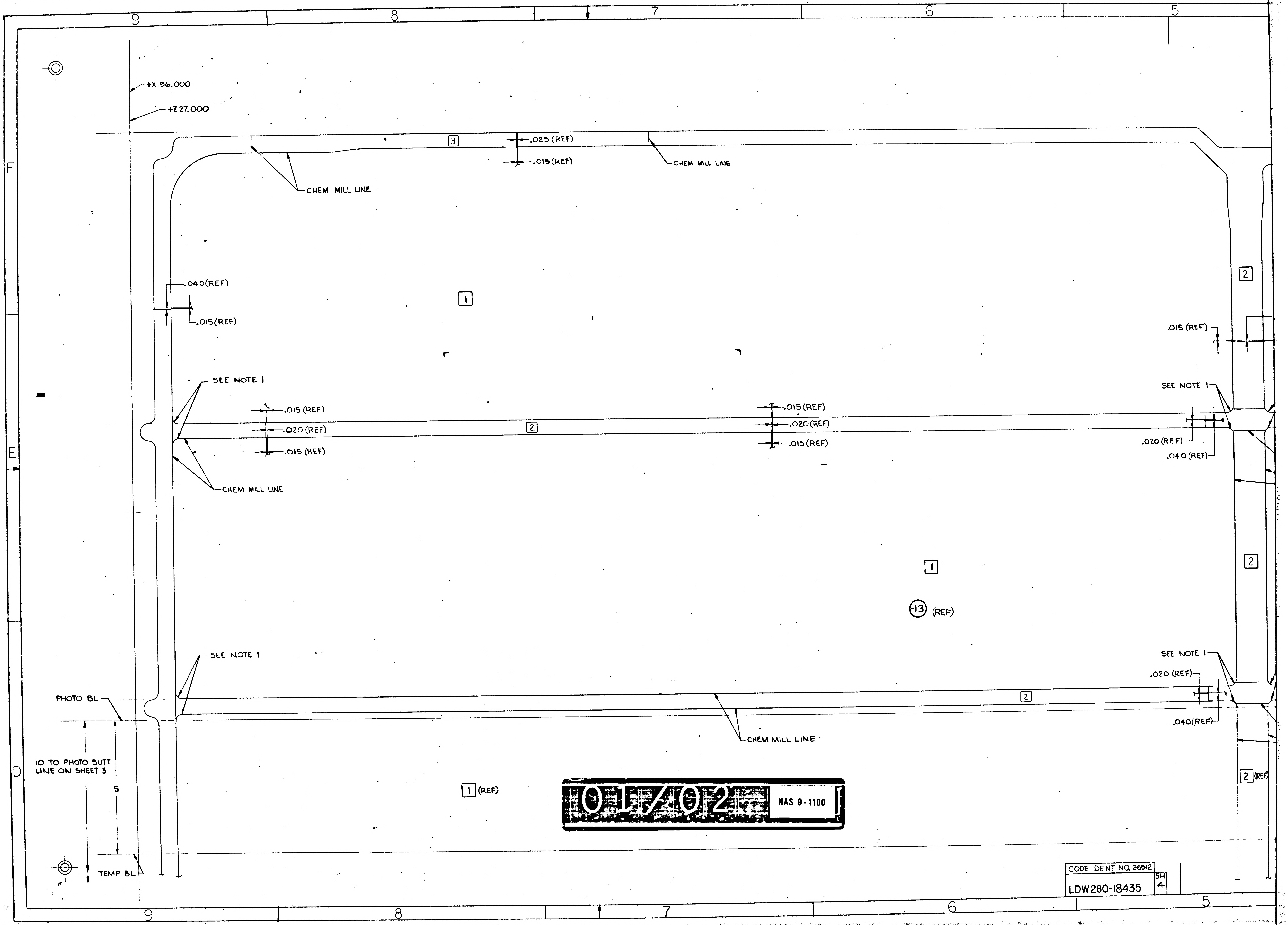
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18435	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

GEOM O.K.

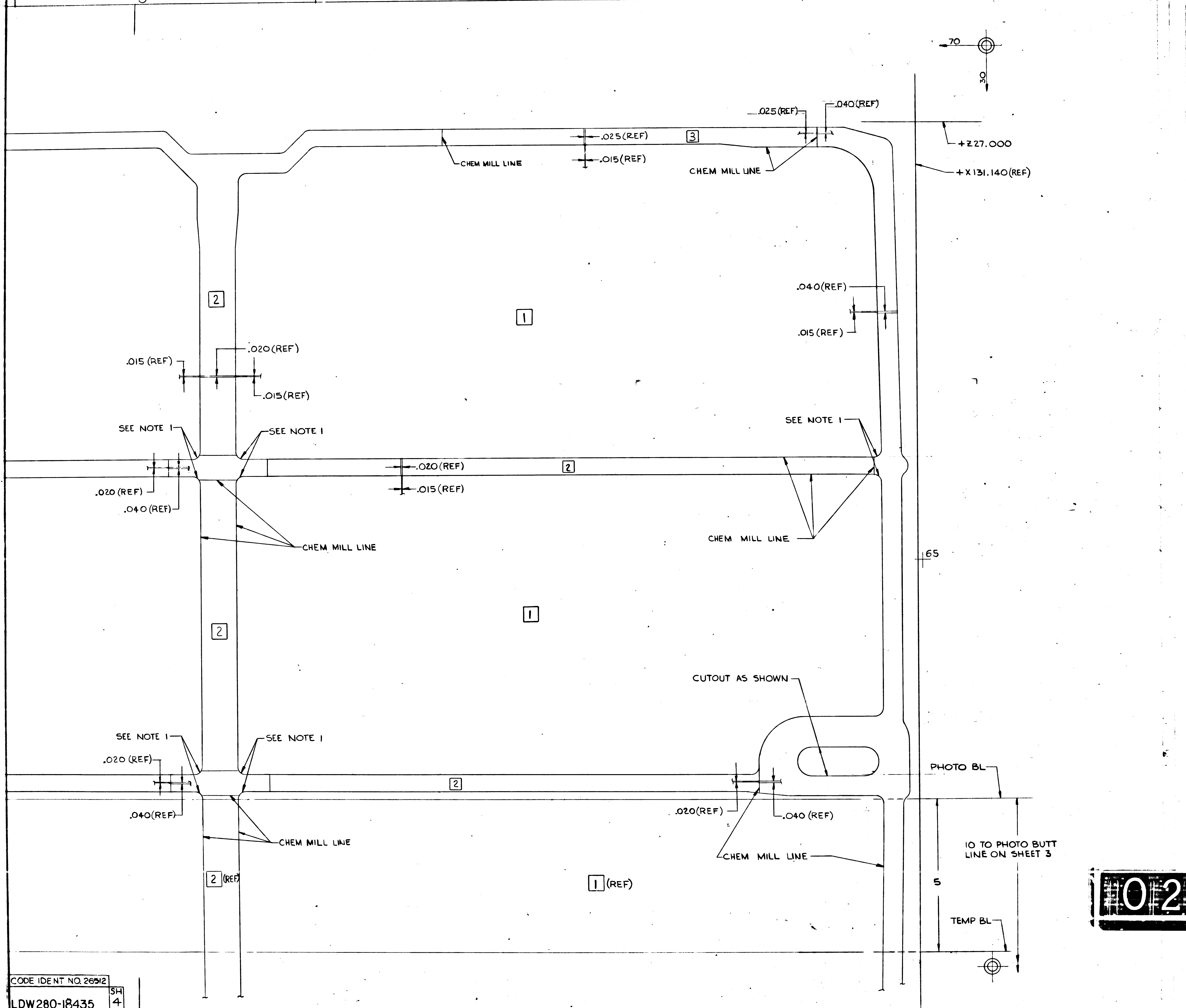


9
8
7
6
5
F
E
D
+X196.000
+Z 27.000
3
.025 (REF)
.015 (REF)
CHEM MILL LINE
CHEM MILL LINE
.040(REF)
.015(REF)
1
2
.015 (REF)
SEE NOTE 1
.015 (REF)
.020 (REF)
.015 (REF)
2
.015(REF)
.020(REF)
.015(REF)
SEE NOTE 1
.020 (REF)
.040 (REF)
CHEM MILL LINE
1
-13 (REF)
2
SEE NOTE 1
SEE NOTE 1
.020 (REF)
2
.040(REF)
CHEM MILL LINE
PHOTO BL
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMP BL
1 (REF)
2 (REF)
01/02
NAS 9-1100

CODE IDENT NO. 26512

LDW280-18435

SH 4


70
30
.025(REF)
.040(REF)
.025(REF)
3
.015(REF)
CHEM MILL LINE
CHEM MILL LINE
+Z27.000
+X131.140(REF)
2
1
.040(REF)
.015 (REF)
.015 (REF)
.020(REF)
.015(REF)
SEE NOTE 1
SEE NOTE 1
SEE NOTE 1
.020(REF)
.015(REF)
2
.020 (REF)
.040(REF)
CHEM MILL LINE
CHEM MILL LINE
65
1
2
CUTOUT AS SHOWN
SEE NOTE 1
SEE NOTE 1
.020 (REF)
PHOTO BL
2
.040(REF)
.020(REF)
.040 (REF)
CHEM MILL LINE
CHEM MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 3
5
2 (REF)
1 (REF)
TEMP BL

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25. SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

02/02

NAS 9-1100

CODE IDENT NO. 26512
LDW280-18435 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-18435	A
MODEL OR END ITEM	SCALE FULL		SHEET 4 OO	

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18435
EO NO. A
CONTROL INFO NO. LDW280A8793

CREATE -11 WEB IDENTICAL TO LDW280-17635-13 WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T= NONE
EFF: N/A LDW280-23535 LM4(3A) THRU LEM 15(45) & LTA-3D
(ADD)

ADD -11 1 REQ/MOD
ADD NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18435-11 IS SIMILAR TO LDW280-17635-13

(REF)	LDW280-18435 -11		
	CHEM-MILL LINE TOL.... (SAME)		
LDW280 17635-13	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	1	.015 ±.002	.025(REF)
2			
3			
4	2	.020 ±.002	.020(REF)
5	3	.025 $^{+.003}_{-.002}$	.015(REF)

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997

5

REASON FOR EO
IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.

DESCRIPTION OF EO
EOA1 INITIAL DWG RELEASE
PARTS MADE PER EO

GAEC EO RELEASE
JK 8/18/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
*		NOT	REQ

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	VJP			—	WBS		WLB	
DATE	8/16/67			—	8/17/67		8/17/67	8-18-67
	V.D.I.							

PRIORITY C

DRAWING TITLE
DESCENT STAGE-BEAM PANEL WEB
ENG COMPT. R.H

DRAWING NO. LDW280-18435
EO NO. A1

ISSUED BY PLANTE 1153 8/18
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

01 NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCDL997 5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/67

MODEL: LM

EFFECTIVITY: PROCURING ACTIVITY NO.: | GAEC UNIT NO.: LMA(34) THRU LM15(45) | SUB CONTR UNIT NO.: 8LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD | REWORK | SCRAP

APPROVED BY: | DATE 8/21/67 | V.D.I.

SUPPORT | RELIAB. GROUP | GROUP LEADER: — | STRESS GROUP: NM 8/23/67 | LIAISON ENGRG | PROJ ENGRG: 8/24/67 | 8-28-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 696

8/25
ISSUED BY: PLANTE 1153 SECTION: VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWGS ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASSY, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB - D.S. - END BLKD - R.H. END BHD
✓	" -18425	-11	-13	A3	" - L.H. END BHD
✓	" -18426	-11	-13	A3	" - FWD END BHD
✓	" -18427	-11	-13	A3	" - AFT END BHD
✓	" -18429	-15	-17	A5	" D.S. - BEAM PANEL - FWD ENG. COMPT.
✓	" -18432	-13	-15	A4	" - AFT ENG COMPT.
✓	" 18435	-11	-13	A3	" - R.H ENG COMPT
	" -18438	-15	-17	A6	" - L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 ok 5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED - *, REMOVED - **.

Ⓡ GAEC EO RELEASE: VK 8/30/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAP				NM			
DATE	8/21/67				8/23/67		8/24/67	8/30/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO280
EO NO.: 698

8/25
ISSUED BY PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425		B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443		B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE C: JK 9/7/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

	APPROVED BY	DATE
VDI		9/7/67
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		9/7/67
STRESS GROUP		9-7-67
LIAISON ENGRG		
PROJ ENGRG		9/7/67
~~CONF~~		9-7-67

DATE 9/7/67

PRIORITY C

DRAWING TITLE NOTED

DRAWING NO. LEO 280

EO NO. 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18435 | EO NO. B2
CONTROL INFO NO. LDW280A 9504

ADD -15 IDENTICAL TO LDW280-17635-13 EXCEPT AS NOTED
-15 EFF LTA-3(13) & LM-6(36) THRU LM-15(45) N/A LDW280-23535
-15 STOCK GAGE .050 PROCESS & FINISH "SEE NOTE *"
ADD NOTE * "FABRICATE & FINISH # 76 PER LPC 280-43" I&T=S
ALL NOTES OF LDW280-17635 DO NOT APPLY
REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) REQMTS FOR -13
(REF) TOOLING FOR LDW280-18434-15 SIMILAR TO LDW280-17635-13

(WAS)	(15)		
LDW280-17635-13	LDW280-18435-15		
SYMBOL	SYMBOL	THICKNESS AFTER CHEM-MILL	DEPTH OF CUT
1 .007	1	$.012^{+.003}_{-.002}$	.028 (REF)
2 .009			
3 .011			
4 .020	2	$.020^{+.003}_{-.002}$	.020 (REF)
5 .025	3	.025 ±.003	.015 (REF)

*USE NEXT AVAILABLE NOTE NUMBER (8)

DETAIL SPEC REQ		CL II ENGRG CHG	√	CL I ENGRG CHG	✓	LCD 1997 LCD 2220 (CL II ENGRG CHG)	3

REASON FOR EO: REVISE MIN. WEB GAGE & INCREASE CRACK RESISTANCE

DESCRIPTION OF EO: ADDED -15 & NOTE * FROM -13
REMOVED LTA-3(13), LM-6(36) THRU LM-15(45) REQMTS

GAEC EO RELEASE: SK 10/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓ -13

APPROVED BY			JAS			WEB	
DATE	10/16/67		HP 10-13-67		10/16/67	10/16/67	10-18-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE - BEAM PANEL ENG. COMP. R.H.
DRAWING NO.: LDW280-18435
EO NO.: B2

10/18 J. LANG
ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 10/13/67 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433 ✓	C2	
-18434 ✓	C1	
-18435 ✓	B4	
-18436	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -✱

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280
EO NO. 1651
CONTROL INFO NO. LDW280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18435	SEE DWG	B5
436		C3
438		C2
439		C3
457		A3
458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY	C8t				M		
DATE	7-29-69			7/?/69	8-2-69		8/29/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18436 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

PART NO. LDW280-18436-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23536	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM	LDW280-23536	LTA-3(13)	1

PART NO. LDW280-18436-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23536	LM-5(35)	1
LM	LDW280-23536	LM-4(34)	1

WORK PKG FUNCTION NO. 110 ③

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00
REV	B	B	B	B	B

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO B

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1997

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY R.NISBET 8-19-67
LAYOUT BY J.ANDERSON-8-22-67
CHECKED BY JLC 9-20-67
GR.LEADER
VEH.DESINT
STRUCTURES
STRUCTURES 9/25
WEIGHTS
PROJ ENGR
REL GROUP 9-27-67
RELEASE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE BEAM PANEL
AFT R.H.

SIZE B
CODE IDENT NO. 26512
LDW280-18436 B
SCALE NONE
SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00,1.10,2.00 & 3.00				✓		E.O. A1 LCD 1997	E.O. A1 INITIAL DWG RELEASE PARTS MADE PER E.O.	LTA-3D(13) LM-4 THRU-15	NOT	REQD	R. NISBET 8-31-67		9-27-67
	2	1.00,1.10,2.00 3.00				✓		E.O. A2 LCD1997	ADDED -13, REMOVED -11			-11			
	3	1.10 & 3.00				✓		LEO 280-696 LCD1997	ADDED NOTE 1, REMOVED NOTE (X,Y,Z)		NOT	REQD			
	4	1.10 & 3.00							REF E.O. A1 & LEO 280-696 ALL NOTES NOT APPLICABLE & ADDED NOTES 1,2,3 & 4		NOT	REQD			
B	1	3.00.1.10	1A			✓		LEO280-760 LCD 1997	ON-13 REVISED CHEM-MILL TOLERANCE $.015^{+.003}_{-.002}$ WAS .015 ± .002	LM-4 THRU LM-15 & LTA 3	NOT	REQD	A. LITVINOFF 10-25-67	X	X
	2	3.00, 1.10	8A			✓		EO B2 LCD1997	ADDED SLOT CUTOUT FOR -13		✓			X	X
	3	3.00, 1.00 1.10	4C	PRIOR EVENT CODE B			✓	EO B3 LCD 2183	ADDED -15. REMOVED LM-6(36) THRU LM-15(45) REQ FROM -13.	LM-6 THRU LM-15		✓		X	X
	4	1.00, 2.00 3.00, 1.10	4C	PRIOR EVENT CODE B			✓	LCD 2220	REMOVED LTA-3 EFF FROM -13 REMOVED -15, ADDED -17. ADDED -17 TO NOTE # 3.	LTA-3 LM-6 THRU LM-15		-15 -13			10/20/67
	5	1.00				✓		LCD1997	REF LEO 280-760 $.015^{+.003}_{-.002}$ WAS .015 ± .002 SHOULD BE $.015^{+.003}_{-.002}$ WAS .015 ± .002 & $.018^{+.003}_{-.002}$ WAS .018 ± .002	NOTED	NOT	REQD			
	6	3.00.4.00							REMOVED SEE NOTE # 5 FROM REFERENCE PLANE CALLOUTS 4 PLACES (DWG ERROR CORRECTION) WCG	NOT REQD	NOT	REQD		JL 10/27	

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS
A	—	9/25/67	N.M. 9/25/67		
B	PSF 10-26-67	10/26/67	10/27/67		

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18436	B Ⓑ
SCALE NONE			SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18436-17	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.071X57X69	SEE NOTE 3	SEE NOTE 3	
		LDW280-18436-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	071.X57X69	SEE NOTE 3	SEE NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-14-2(GRUMMAN), LPC-14-2 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

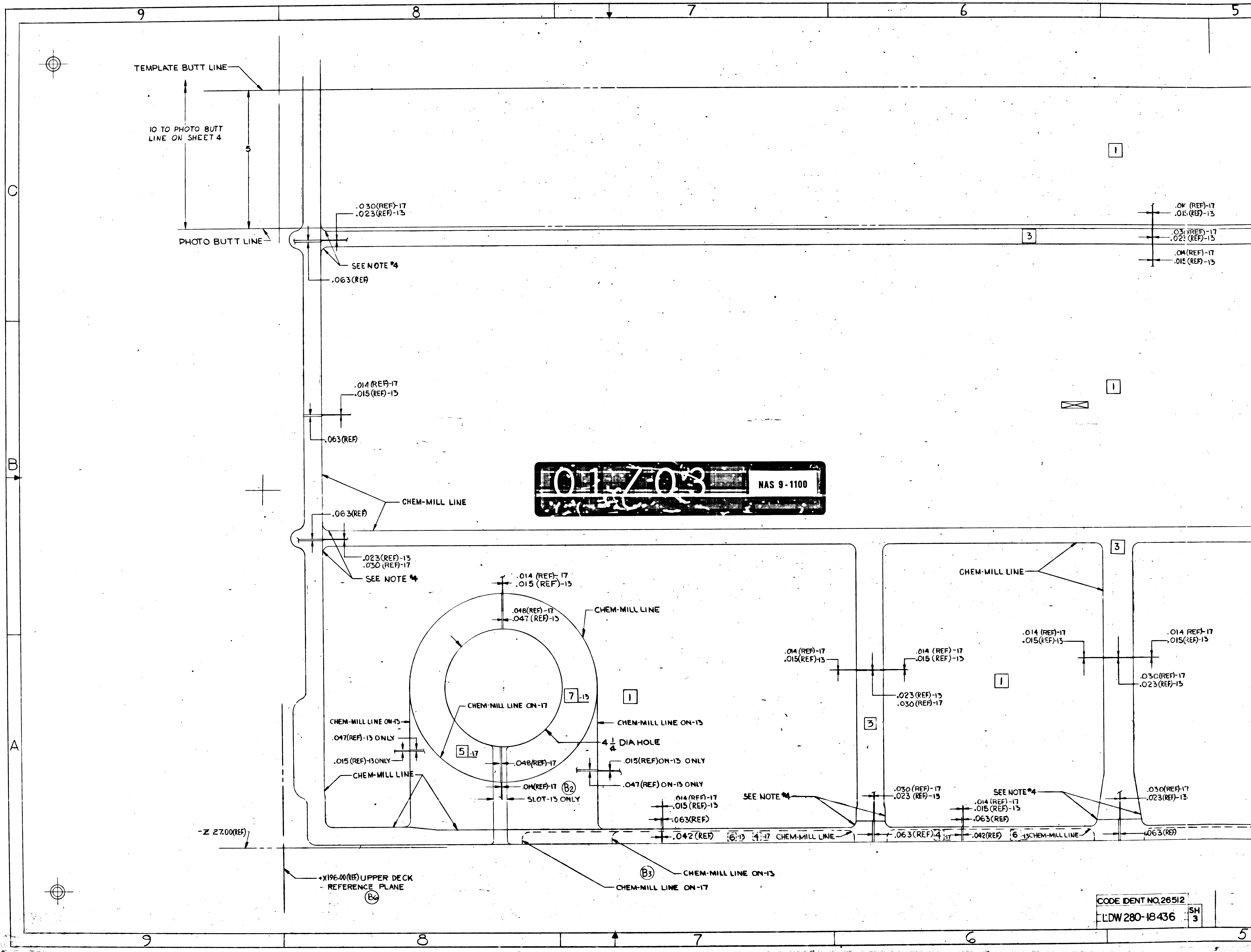
SIZE	CODE IDENT NO.		
B	26512	LDW280-18436	B (B)
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

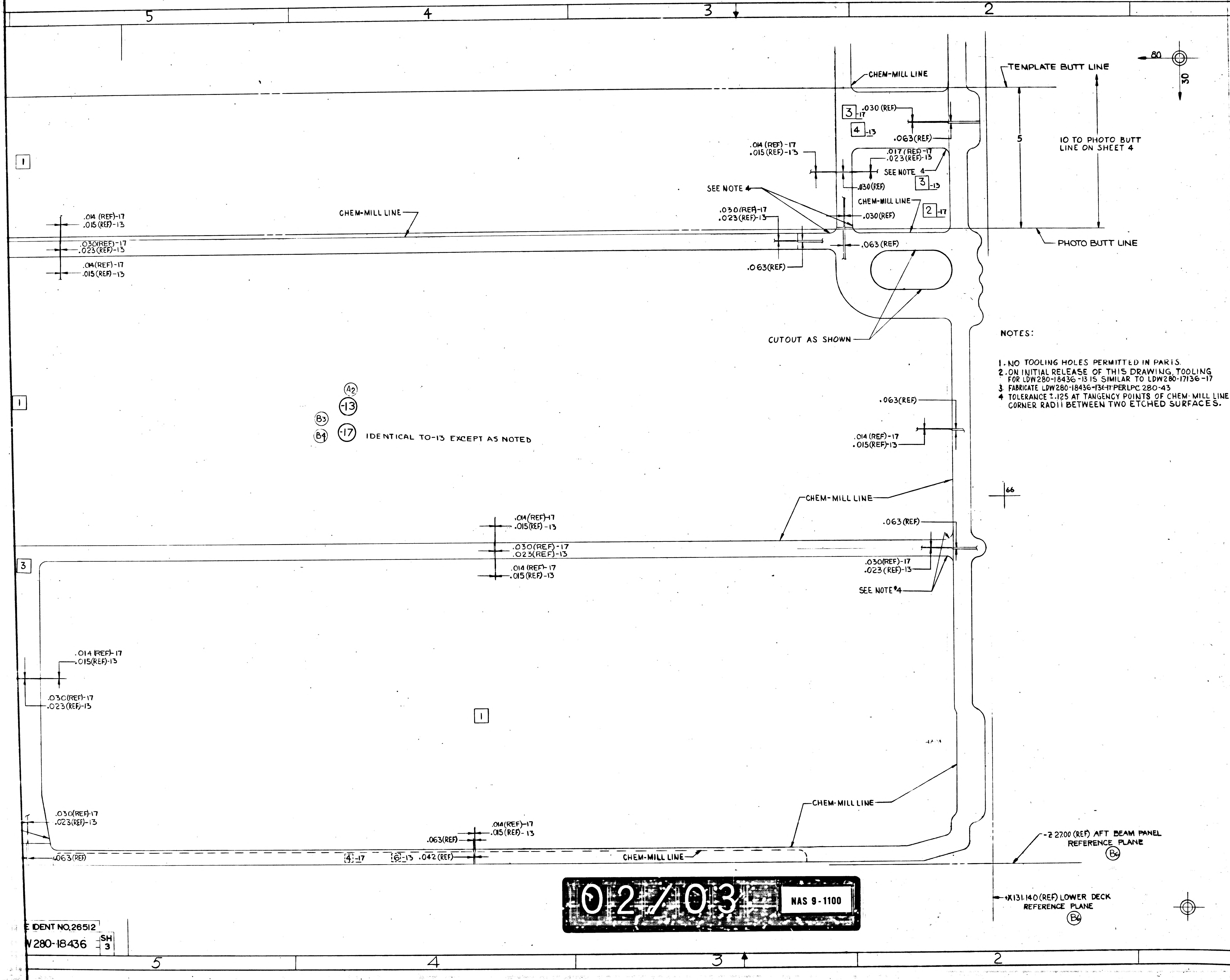
NAS 9-1100

LDW280-18436
SH 3


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
.030(REF)-17
.023(REF)-13
SEE NOTE #4
.063(REF)
1
3
.014 (REF)-17
.015 (REF)-13
.030(REF)-17
.023(REF)-13
.014(REF)-17
.015(REF)-13
.063(REF)
CHEM-MILL LINE
.063(REF)
.023(REF)-13
.030 (REF)-17
SEE NOTE #4
.014 (REF)-17
.015 (REF)-13
.048(REF)-17
.047 (REF)-13
CHEM-MILL LINE
CHEM-MILL LINE ON-17
7 -13
5 -17
CHEM-MILL LINE ON-13
.047(REF)-13 ONLY
.015 (REF)-13 ONLY
CHEM-MILL LINE
CHEM-MILL LINE ON-13
4 1/4 DIA HOLE
.015(REF)ON-13 ONLY
.048(REF)-17
.014(REF)-17
SLOT-13 ONLY
B2
.047(REF) ON-13 ONLY
.014 (REF)-17
.015 (REF)-13
.063(REF)
.042(REF)
6 -13
4 -17
CHEM-MILL LINE
SEE NOTE #4
.014 (REF)-17
.015(REF)-13
.014 (REF)-17
.015 (REF)-13
.023 (REF)-13
.030 (REF)-17
CHEM-MILL LINE
.030 (REF)-17
.023 (REF)-13
.063 (REF)
4 -17
.014 (REF)-17
.015 (REF)-13
.063(REF)
.042(REF)
6 -13
CHEM-MILL LINE
SEE NOTE #4
.014 (REF)-17
.015(REF)-13
.030(REF)-17
.023(REF)-13
.014 REF-17
.015(REF)-13
.030(REF)-17
.023(REF)-13
.063(REF)
-Z 27.00(REF)
+X196.00(REF) UPPER DECK REFERENCE PLANE
B4
B3
CHEM-MILL LINE ON-13
CHEM-MILL LINE ON-17
2/1

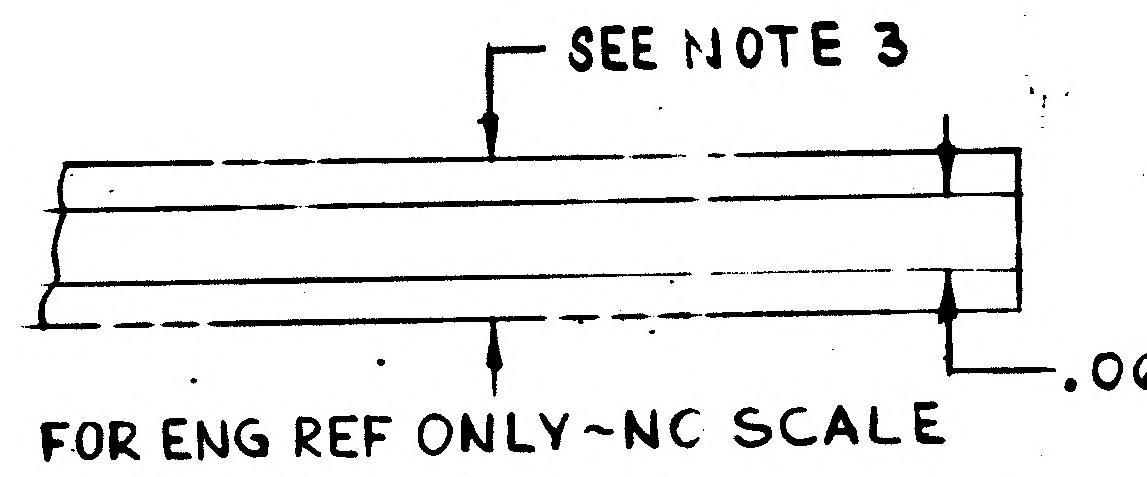
01Z03 NAS 9-1100

CODE IDENT NO. 26512
LDW 280-18436
SH 3


5
4
3
2
TRAM 43
80
30
CHEM-MILL LINE
TEMPLATE BUTT LINE
3 -17 .030 (REF)
4 -13
.063(REF)
5
10 TO PHOTO BUTT LINE ON SHEET 4
.014 (REF) -17
.015 (REF) -13
.017 (REF) -17
.023 (REF) -13
SEE NOTE 4
.030(REF)
3 -13
SEE NOTE 4
CHEM-MILL LINE
2 -17
.030(REF)-17
.023(REF)-13
.030(REF)
.063 (REF)
PHOTO BUTT LINE
.063(REF)
1
.014 (REF)-17
.015 (REF)-13
CHEM-MILL LINE
.030(REF)-17
.023 (REF)-13
.014(REF)-17
.015 (REF)-13
CUTOUT AS SHOWN
1
A2
-13
B3
B4
-17
IDENTICAL TO-13 EXCEPT AS NOTED
.063(REF)
.014 (REF)-17
.015(REF)-13
66
CHEM-MILL LINE
.014(REF)-17
.015(REF)-13
.063 (REF)
.030(REF)-17
.023(REF)-13
.030(REF)-17
.023(REF)-13
.014 (REF)-17
.015 (REF)-13
SEE NOTE 4
3
.014 (REF)-17
.015(REF)-13
.030(REF)-17
.023(REF)-13
1
CHEM-MILL LINE
.030(REF)-17
.023(REF)-13
.014(REF)-17
.015(REF)-13
.063(REF)
.063(REF)
4 -17
6 -13
.042 (REF)
CHEM-MILL LINE
Z 227.00 (REF) AFT BEAM PANEL REFERENCE PLANE
B4
X131.140 (REF) LOWER DECK REFERENCE PLANE
B4

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR LDW280-18436-13 IS SIMILAR TO LDW280-17136-17
3. FABRICATE LDW280-18436-13 & -17 PER LPC 280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.



FOR ENG REF ONLY~NC SCALE

LDW280-18436-13

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM MILLING	* DEPTH OF CUT
1	.015 $^{+.003}_{-.002}$	.048(REF)
2	.018 $^{+.003}_{-.002}$	.045(REF)
3	.023 $^{+.003}_{-.002}$	.040(REF)
4	.030 ± .003	.033(REF
5	.037 $^{+.004}_{-.003}$	.026(REF)
6	.042 ± .004	.021(REF
7	.047 $^{+.005}_{-.004}$	.016(REF)

LDW280-18436-17

CHEM-MILL LINE TOLERANCE
±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

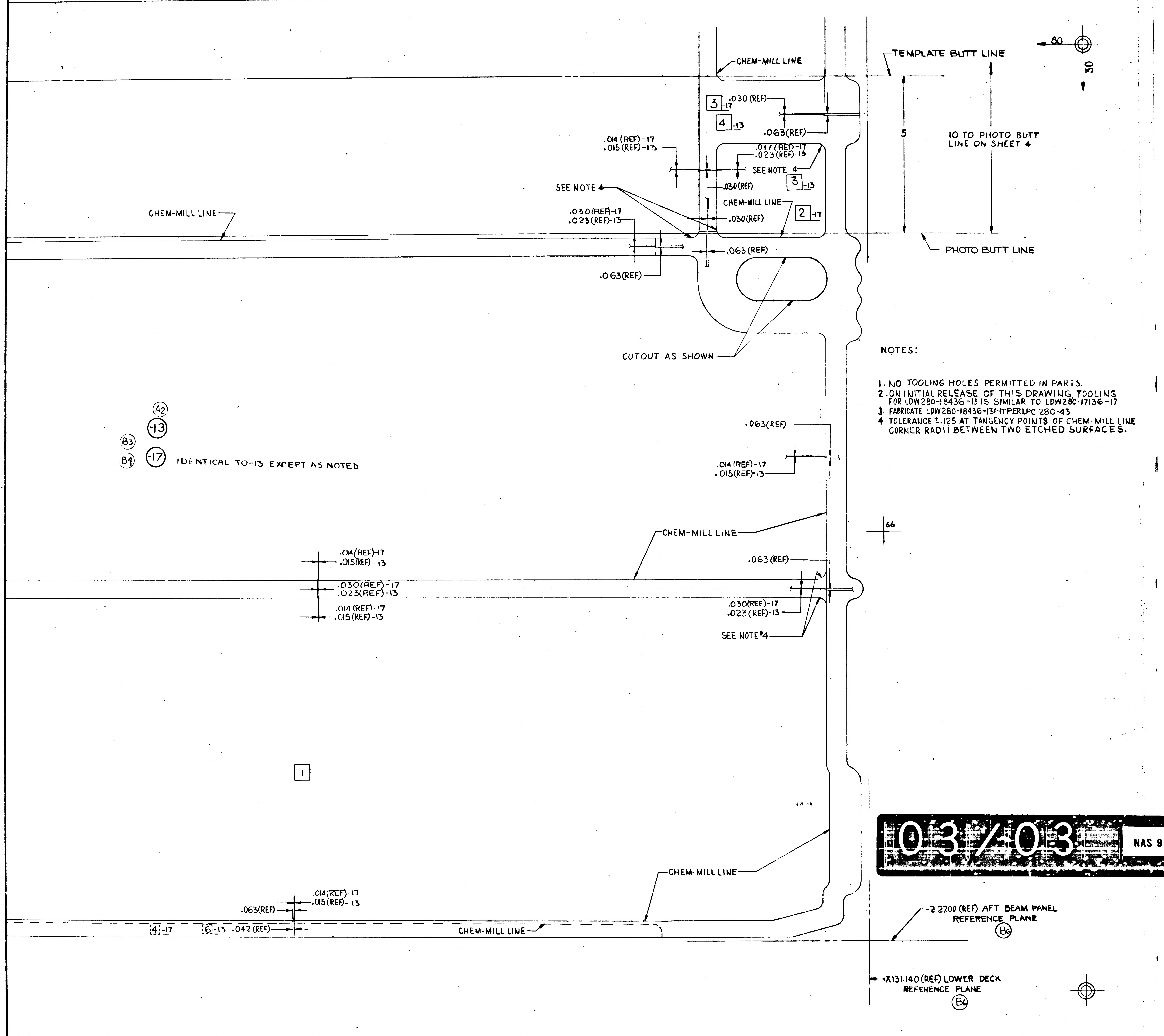
SYMBOL	THICKNESS AFTER CHEM MILLING	* DEPTH OF CUT
1	.014 $^{+.003}_{-.002}$	.049(REF
2	.017 $^{+.003}_{-.002}$	.046(REF
3	.030 $^{+.003}_{-.002}$	.033(REF
4	.042 ± .003	.021 (REF
5	.048 $^{+.004}_{-.003}$	.015(REF)

02/03 NAS 9-1100

E IDENT NO.26512
W280-18436 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP,		
	SIZE	CODE IDENT NO.	
LM	J	26512	LDW28
MODEL OR END ITEM	SCALE FULL		

FOR PHOTO REP


4
3
2
TRAM 43
CHEM-MILL LINE
TEMPLATE BUTT LINE
80
30
3 -17 .030 (REF)
4 -13
.063 (REF)
5
10 TO PHOTO BUTT LINE ON SHEET 4
.014 (REF) -17
.015 (REF) -13
.017 (REF) -17
.023 (REF) -13
SEE NOTE 4
3 -13
.030 (REF)
SEE NOTE 4
CHEM-MILL LINE
2 -17
.030 (REF)
CHEM-MILL LINE
.030 (REF) -17
.023 (REF) -13
.063 (REF)
PHOTO BUTT LINE
.063 (REF)
CUTOUT AS SHOWN
A2
-13
B3
B4
-17
IDENTICAL TO -13 EXCEPT AS NOTED
.063 (REF)
.014 (REF) -17
.015 (REF) -13
66
CHEM-MILL LINE
.014 (REF) -17
.015 (REF) -13
.063 (REF)
.030 (REF) -17
.023 (REF) -13
.014 (REF) -17
.015 (REF) -13
.030 (REF) -17
.023 (REF) -13
SEE NOTE 4
1
03/03
NAS 9-1100
CHEM-MILL LINE
.014 (REF) -17
.015 (REF) -13
.063 (REF)
4 -17
6 -13
.042 (REF)
CHEM-MILL LINE
-Z 27.00 (REF) AFT BEAM PANEL REFERENCE PLANE
B6
+X131.140 (REF) LOWER DECK REFERENCE PLANE
B4
C
B
A
LDW280-18436 B
LDW280-18436 B

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR LDW280-18436 -13 IS SIMILAR TO LDW280-17136 -17
3. FABRICATE LDW280-18436-13 & -17 PER LPC 280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

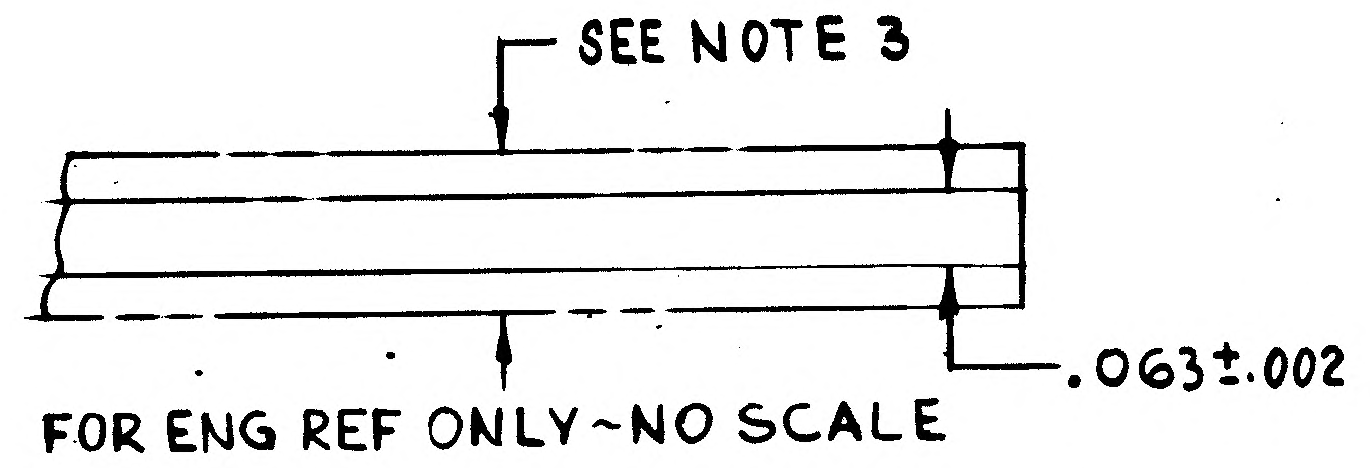
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (30x 157) =
1/4 SIZE SHEET AREA (1/4 OF FULL) =

PRINT TRIM LINE


SEE NOTE 3
.063±.002

FOR ENG REF ONLY~NO SCALE

LDW280-18436-13

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.048(REF)
2	$.018^{+.003}_{-.002}$	.045 (REF)
3	$.023^{+.003}_{-.002}$	.040(REF)
4	.030 ± .003	.033(REF
5	$.037^{+.004}_{-.003}$	.026(REF)
6	.042 ± .004	.021 (REF
7	$.047^{+.005}_{-.004}$	.016(REF)

LDW 280-18436-17

CHEM-MILL LINE TOLERANCE
±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.014^{+.003}_{-.002}$	.049 (REF)
2	$.017^{+.003}_{-.002}$	.046 (REF)
3	$.030^{+.003}_{-.002}$	.033 (REF)
4	.042 ± .003	.021 (REF)
5	$.048^{+.004}_{-.003}$	.015 (REF)

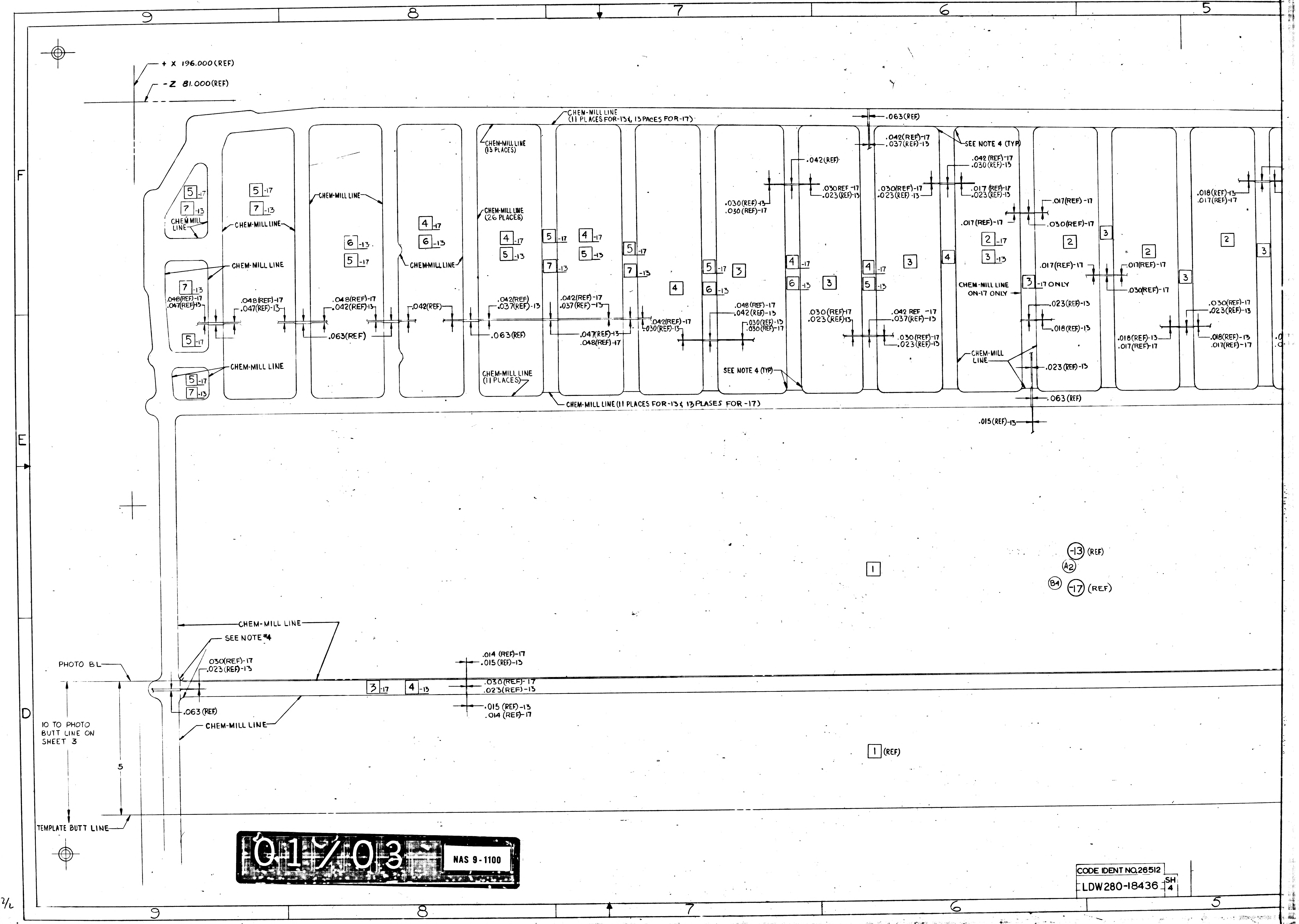
	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18436	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

Ⓑ

FOR PHOTO REPRODUCTION

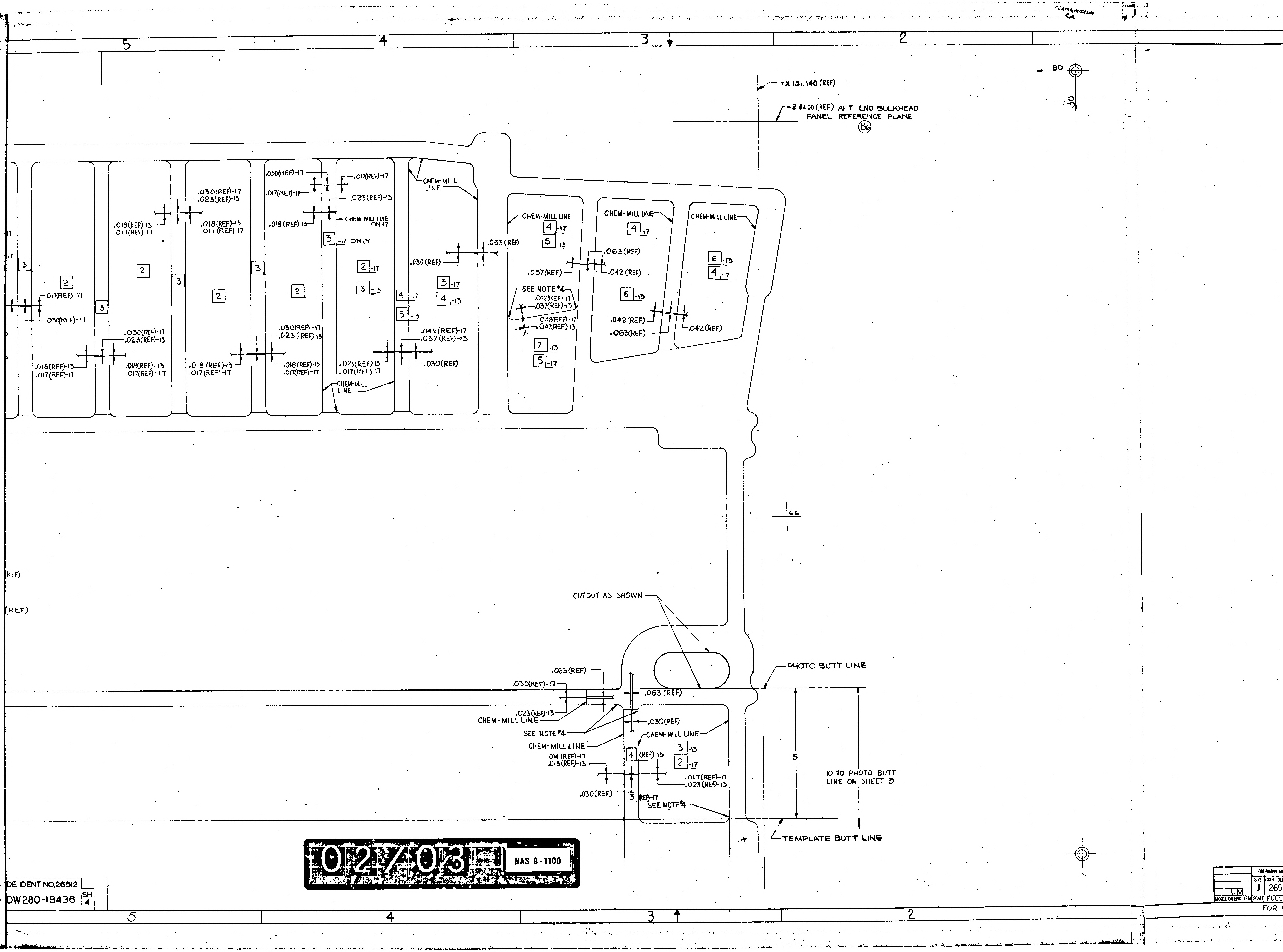
K2

ENG 73-7 6-64


9
8
7
6
5
F
E
D
+ X 196.000 (REF)
- Z 81.000 (REF)
CHEM-MILL LINE (11 PLACES FOR -13, 13 PACES FOR -17)
.063 (REF)
.042 (REF) -17
.037 (REF) -13
SEE NOTE 4 (TYP)
CHEM-MILL LINE (13 PLACES)
CHEM-MILL LINE (26 PLACES)
CHEM-MILL LINE (11 PLACES)
CHEM-MILL LINE
5 -17
7 -13
6 -13
4 -17
2 -17
3 -13
3 -17 ONLY
CHEM-MILL LINE ON -17 ONLY
.048 (REF) -17
.047 (REF) -13
.048 (REF) -17
.042 (REF) -13
.042 (REF)
.042 (REF)
.037 (REF) -13
.042 (REF) -17
.037 (REF) -13
.047 (REF) -13
.048 (REF) -17
.042 (REF) -17
.030 (REF) -13
.030 (REF) -13
.030 (REF) -17
.063 (REF)
.030 REF -17
.023 (REF) -13
.030 (REF) -17
.023 (REF) -13
.017 (REF) -17
.023 (REF) -13
.042 REF -17
.037 (REF) -13
.030 (REF) -17
.023 (REF) -13
.017 (REF) -17
.030 (REF) -17
.023 (REF) -13
.018 (REF) -13
.017 (REF) -17
.015 (REF) -13
CHEM-MILL LINE (11 PLACES FOR -13 & 13 PLASES FOR -17)
1
1 (REF)
-13 (REF)
A2
B4
-17 (REF)
PHOTO BL
SEE NOTE #4
.030 (REF) -17
.023 (REF) -13
.063 (REF)
.014 (REF) -17
.015 (REF) -13
.015 (REF) -13
.014 (REF) -17
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMPLATE BUTT LINE

01/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-18436 SH 4

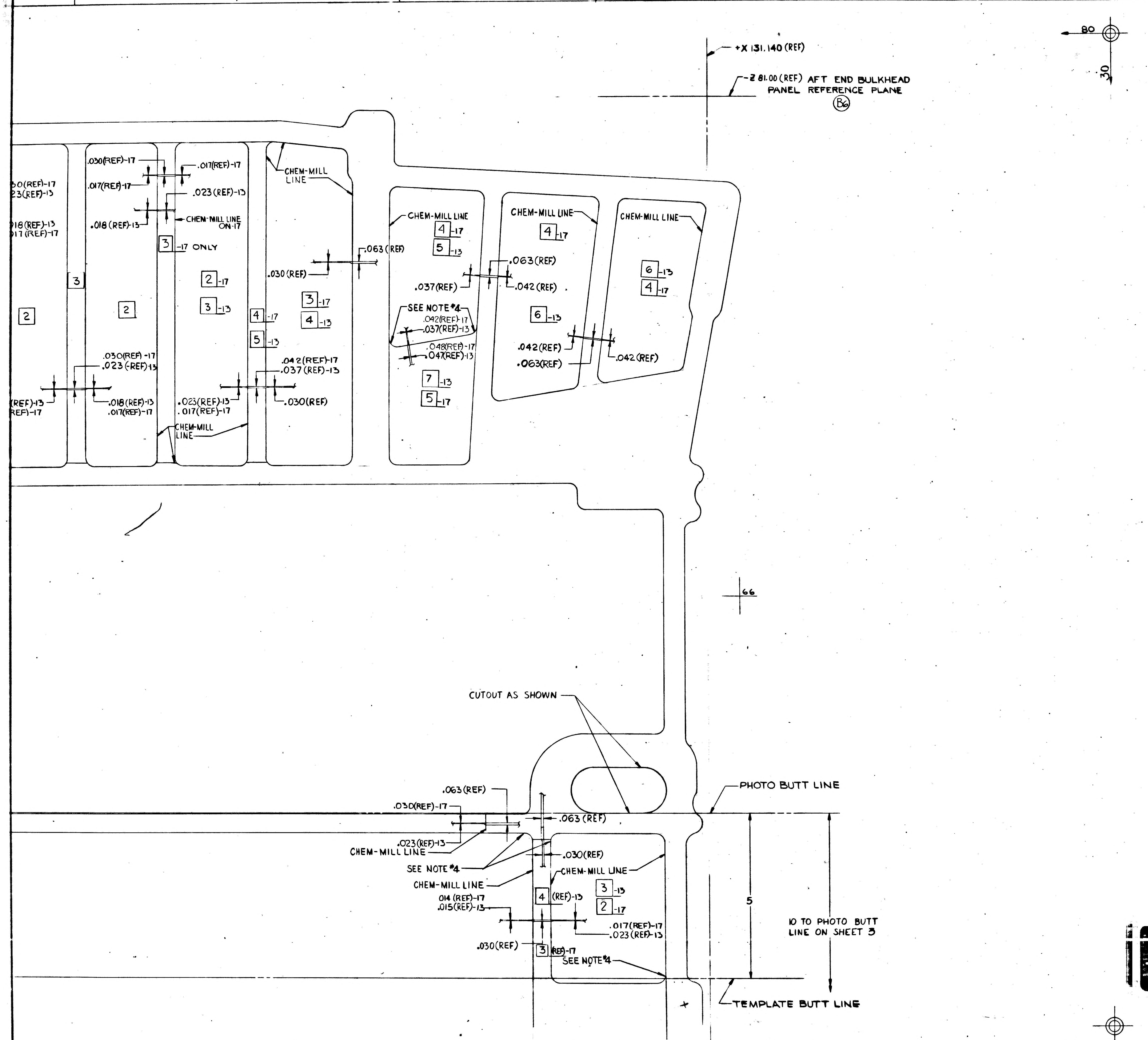


5
4
3
2
+X 131.140 (REF)
-Z 81.00 (REF) AFT END BULKHEAD PANEL REFERENCE PLANE
B6
80
30
.030(REF)-17
.023(REF)-13
.018(REF)-13
.017(REF)-17
.017(REF)-17
.030(REF)-17
.023(REF)-13
.018(REF)-13
.017(REF)-17
.030(REF)-17
.017(REF)-17
.017(REF)-17
.023 (REF)-13
.018 (REF)-13
CHEM-MILL LINE ON-17
3 -17 ONLY
CHEM-MILL LINE
.063 (REF)
.030 (REF)
2 -17
3 -13
3 -17
4 -13
4 -17
5 -13
.030(REF)-17
.023 (REF)-13
.018 (REF)-13
.017(REF)-17
.018(REF)-13
.017(REF)-17
.023(REF)-13
.017(REF)-17
CHEM-MILL LINE
.042 (REF)-17
.037 (REF)-13
.030(REF)
CHEM-MILL LINE
4 -17
5 -13
.037(REF)
SEE NOTE #4
.042(REF)-17
.037(REF)-13
.048(REF)-17
.047(REF)-13
7 -13
5 -17
CHEM-MILL LINE
4 -17
.063(REF)
.042 (REF)
6 -13
.042(REF)
.063(REF)
.042(REF)
CHEM-MILL LINE
6 -13
4 -17
2
3
66
CUTOUT AS SHOWN
PHOTO BUTT LINE
.063 (REF)
.030(REF)-17
.063 (REF)
.023(REF)-13
CHEM-MILL LINE
SEE NOTE #4
.030(REF)
CHEM-MILL LINE
CHEM-MILL LINE
.014 (REF)-17
.015(REF)-13
4 (REF)-13
3 -13
2 -17
.017(REF)-17
.023(REF)-13
.030(REF)
3 (REF)-17
SEE NOTE #4
5
10 TO PHOTO BUTT LINE ON SHEET 5
TEMPLATE BUTT LINE
(REF)
(REF)
DE IDENT NO. 26512
DW 280-18436
SH 4
GRUMMAN AI
SIZE J
CODE IDEN 265
LM
MOD. L OR END ITEM
SCALE FULL
FOR

02/03

NAS 9-1100

TRANS OVERLAY
B.P.


4
3
2
80
30
+X 131.140 (REF)
-Z 81.00 (REF) AFT END BULKHEAD
PANEL REFERENCE PLANE
B6
30(REF)-17
23(REF)-13
018(REF)-13
017(REF)-17
2
3
(REF)-13
(REF)-17
.030(REF)-17
.017(REF)-17
.018 (REF)-13
2
.030(REF)-17
.023 (-REF)-13
.018(REF)-13
.017(REF)-17
.017(REF)-17
.023 (REF)-13
CHEM-MILL LINE ON-17
3 -17 ONLY
2 -17
3 -13
.023(REF)-13
.017(REF)-17
CHEM-MILL LINE
4 -17
5 -13
CHEM-MILL LINE
.030 (REF)
.063 (REF)
3 -17
4 -13
.042 (REF)-17
.037 (REF)-13
.030(REF)
CHEM-MILL LINE
4 -17
5 -13
.037(REF)
SEE NOTE #4
.042(REF)-17
.037(REF)-13
.048(REF)-17
.047(REF)-13
7 -13
5 -17
CHEM-MILL LINE
4 -17
.063(REF)
.042 (REF)
6 -13
.042(REF)
.063(REF)
CHEM-MILL LINE
6 -13
4 -17
.042 (REF)
66
CUTOUT AS SHOWN
.063 (REF)
.030(REF)-17
.023(REF)-13
CHEM-MILL LINE
SEE NOTE #4
CHEM-MILL LINE
014 (REF)-17
.015(REF)-13
.030(REF)
.063 (REF)
.030(REF)
CHEM-MILL LINE
4 (REF)-13
3 -13
2 -17
.017(REF)-17
.023 (REF)-13
3 (REF)-17
SEE NOTE #4
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
4
3
2

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .000 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 107) = 27. SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 7. SQ. FT.
PRINT TRIM LINE

F
E
D

LDW280-18436 B

LDW280-18436 B

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18436	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18436
EO NO. A1
CONTROL INFO NO. LDW280A8794

CREATE -11 WEB SAME AS LDW280-17136-17 EXCEPT AS SHN.
EFF FOR -11 LEM-4 (34) THRU LEM-15 (45) + LTA-3D (13)
N/A LDW280-23536 LEM-4 (15) THRU LEM-15 (45) + LTD-3D (13)
(1) REQD PER MOD. — ALL NOTES APPLY EXCEPT NOTE #6

I&T (S)

(SAME)	(ADD) LDW280-18436-11		
LDW280-17136-17 SYMBOL	SYMBOL	THK. AFTER CHEM-MILL	DEPTH OF CUT
1	1	.015 ±.002	.048 (REF)
2	2	.018 ±.002	.045 (REF)
3 4	3	.023 +.003 -.002	.040 (REF)
5	4	.030 ±.003	.033 (REF)
6	5	.037 +.004 -.003	.026 (REF)
7	6	.042 ±.004	.021 (REF)
8	7	.047 +.025 -.004	.016 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18436-11 IS SIMILIAR TO LDW280-17136-17

-11 IDENTICAL TO LDW 280-17136-17 REV D INCLUDING EO E1 LEO 545 - E2 E3

* NEW DWG ~ NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997

REASON FOR EO: TO IMPROVE QUALITY OF CHEM-MILL WEB

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	LM15 (45)
		LTA-3D (13)	

DRAWING CHANGE REQD: * REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD — REWORK / SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8/18/67 VDI			8/18/67	NM 8-19-67		8/21/67	8/22/67

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE BEAM PANEL AFT R.H.
DRAWING NO.: LDW280-18436
EO NO.: A1

8/25
ISSUED BY U. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

A

ENG 32.1 REV 3-65

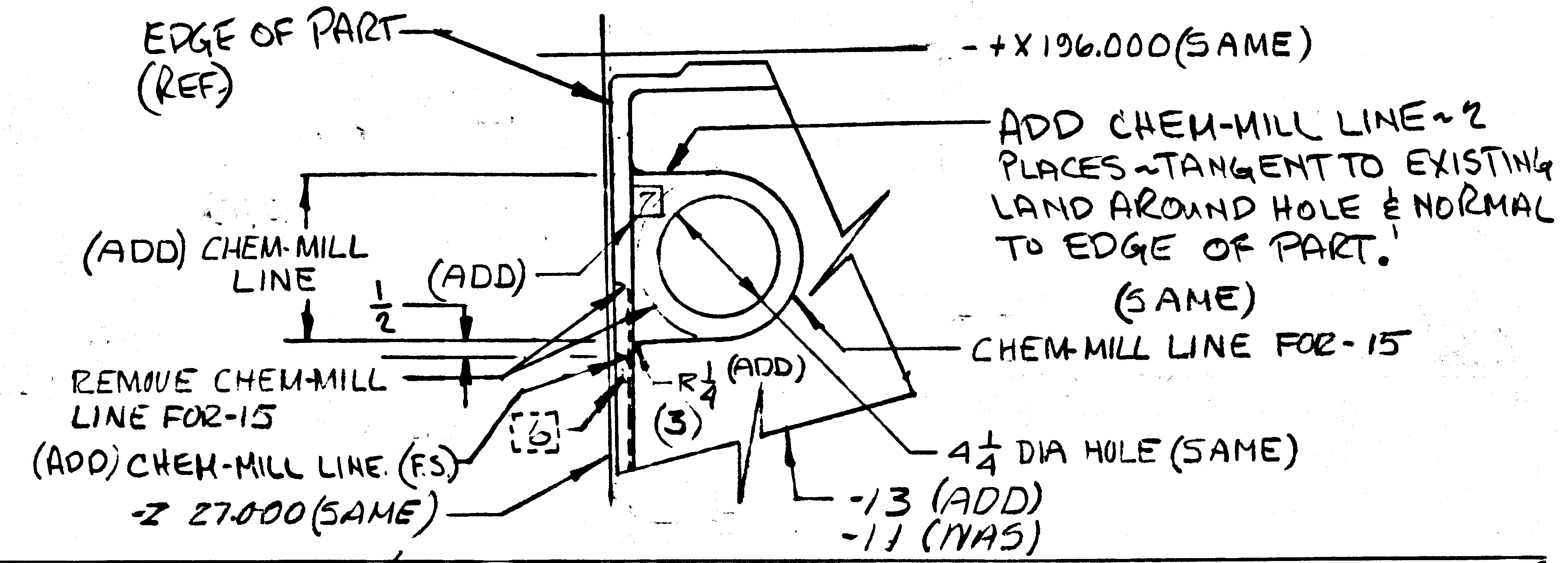
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18436 | EO NO. A2

CONTROL INFO NO. LDW280A 8939

CREATE -13 WEB SAME AS LDW280-18436-11 EXCEPT AS SHN
EFF FOR -13 LEM-4(34) THRU LEM-15(45) & LTA-3D 13 (1) REQD/MOD.
REMOVE LDW280-18436-11 WEB N/A -13 LDW280-23536.


EDGE OF PART (REF)
-+X 196.000 (SAME)
ADD CHEM-MILL LINE ~ 2 PLACES ~ TANGENT TO EXISTING LAND AROUND HOLE & NORMAL TO EDGE OF PART.
(SAME)
(ADD) CHEM-MILL LINE
1/2
(ADD)
7
CHEM-MILL LINE FOR -15
REMOVE CHEM-MILL LINE FOR -15
-R 1/4 (ADD)
(3)
6
(ADD) CHEM-MILL LINE (F.S.)
4 1/4 DIA HOLE (SAME)
-Z 27.000 (SAME)
-13 (ADD)
-11 (NAS)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1997 ok	5

REASON FOR EO: CHEM-MILL LAND FOR SALVAGE WIRE RUNS

DESCRIPTION OF EO: ADDED -13, REMOVED -11

Ⓡ GAEC EO RELEASE C
J/C 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	NM			
DATE	8/24/67			—	8/25/67		8/25/67	8-26-67
	VDI							

PRIORITY C

DRAWING TITLE: WEB DESCENT STAGE BEAM PANEL AFT R.H.

DRAWING NO. LDW280-18436

EO NO. A2

8/25
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION UDI GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 696
CONTROL INFO NO. LDW280A 8879	

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG. COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A3	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE # X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCDL 997		5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE # (X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT REQD		DATE 8/21/67			—	NM 8/23/67		8/24/67	8-28-67
REVISE DWG	RECORD EO	REWORK	SCRAP	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QCT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 706
CONTROL INFO NO. LDW280A 9086		

ON ALL DASH NUMBERS * OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
✓ LDW280-18424	SEE DWG	B1
✓ -18425		B1
✓ -18426		B1
✓ -18427		B1
✓ -18428		B1
✓ -18429		B1
✓ -18430		B1
✓ -18431		B1
✓ -18432		B1
✓ -18433		B1
✓ -18434		B1
✓ -18435		B1
✓ -18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280 -18443		B1
LDW280 -18444	SEE DWG	B1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 1997

5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY				JKS				AC
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

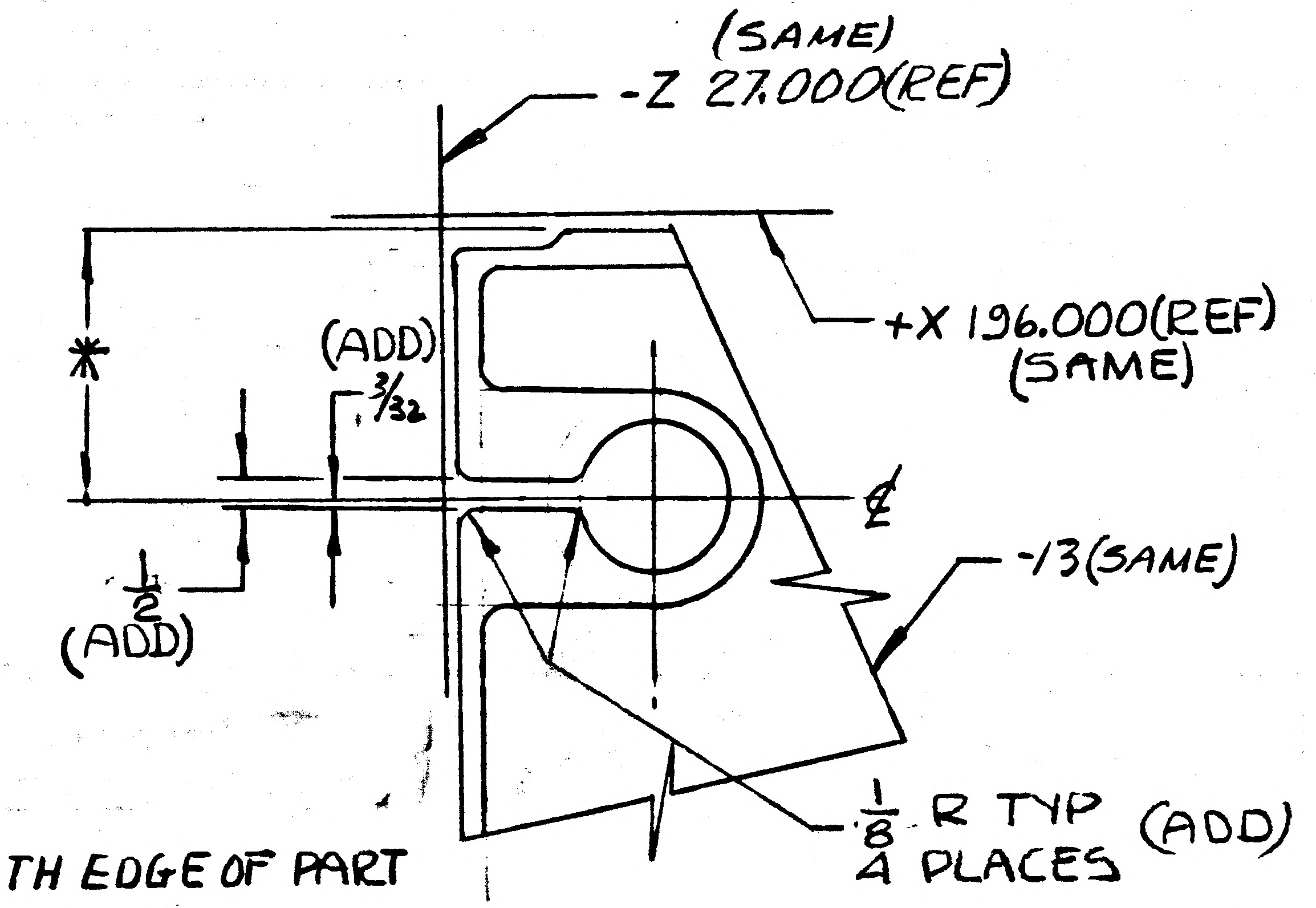
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18436
EO NO. B2
CONTROL INFO NO. LDW280A8702

REVISE -13 AS SHOWN



*PARALLEL WITH EDGE OF PART

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1997 3

REASON FOR EO: SALVAGE OF WIRE RUNS

DESCRIPTION OF EO: ADDED SLOT CUTOUT FOR -13

GAEC EO RELEASE: JK 9/9/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	9/7			9/7/67	9/8/67		9/8	9/9/67

PRIORITY: C

DRAWING TITLE: WEB - DESCENT STAGE BEAM PANEL AFT R.H.

DRAWING NO. LDW280-18436
EO NO. B2

9/9
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433 ✓	C2	
-18434 ✓	C1	
-18435 ✓	B4	
-18436 ✓	C2	
-18437	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69
	VDI	SUPPORT	RE. AB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

NO. LEO 280
EO NO. 1651
CONTROL INFO NO. LDW 280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
438		C2
439		C3
457		A3
458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69 JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	OBT				M		
DATE	7-29-69			7-?-69	8-2-69		8-21-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18437 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54537	LM-15(45)	1
	LDW280-54537	LM-14(44)	1
	LDW280-54537	LM-13 (43)	1
	LDW280-54537	LM-12(42)	1
	LDW280-54537	LM-11 (41)	1
	LDW280-54537	LM-10(40)	1
	LDW280-54537	LM-9 (39)	1
	LDW280-54537	LM-8(38)	1
	LDW280-54537	LM-7(37	1
	LDW280-54537	LM-6(36)	1
	LDW280-54537	LM-5(35)	1
	LDW280-54537	LM-4 (34)	1
LM	LDW280-23537	LTA-3D(13)	1

PART NO. LDW280-18437-13

GAEC SCH NO. 51-4

WORK PKG FUNCTION NO. 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-16A 9/12/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD1997

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY C. D'AVELLA 8-18-67
LAYOUT BY PLANTE
CHECKED BY J Kartzman 9-13-67
GP.LEADER
VEH.DES.INT. 9/16/67
STRUCT. N.M. WJH 9/18/67
STRUCT. 9/18
WEIGHTS
RELIABILITY
MATERIAL
PROJ ENGR 9/18
REL GROUP 9/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE~BEAM PANEL
FWD L.H.

SIZE B
CODE IDENT NO. 26512
LDW280-18437 A
SCALE NONE
SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
A	1	1.00,1.10, 2.,3.,&4.	5A				✓	EOA1 LCD-1997	EOA1 INITIAL DWG RELEASE PARTS MADE PER EO.	LM-4 THRU LM-15&LTA-3	NOT	REQD	C.D'AVELLA 8-31-67		
	2	1.10,2.00 3.00&4.00	5A				✓	EOA2 LCD-1997	ADDED -13~REMOVED -11			-11			
	3	1.10&3.00					✓	LEO280-696 LCD-1997	ADDED NOTE * REMOVED NOTE (X,Y,Z)		NOT	REQD			
	4	1.10&3.00							REF EOA1&A3~ALL NOTES NOT APPLICABLE~ADDED ④NOTES 1,2,3&4.	NOT REQD	NOT	REQD	JK		

	LTR	~~GROUP LDR~~		VEH.DES.INT.	STRUCT.	STRUCT.	WEIGHTS	RELIABILITY	MATERIAL			
CHG APPROVED	A			9/1/67	WJN SEP 9/15/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18437	A
SCALE NONE			SHEET 1.10

ENG 77.18 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18437-13	5	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.063X57X69	SEE NOTE3		6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

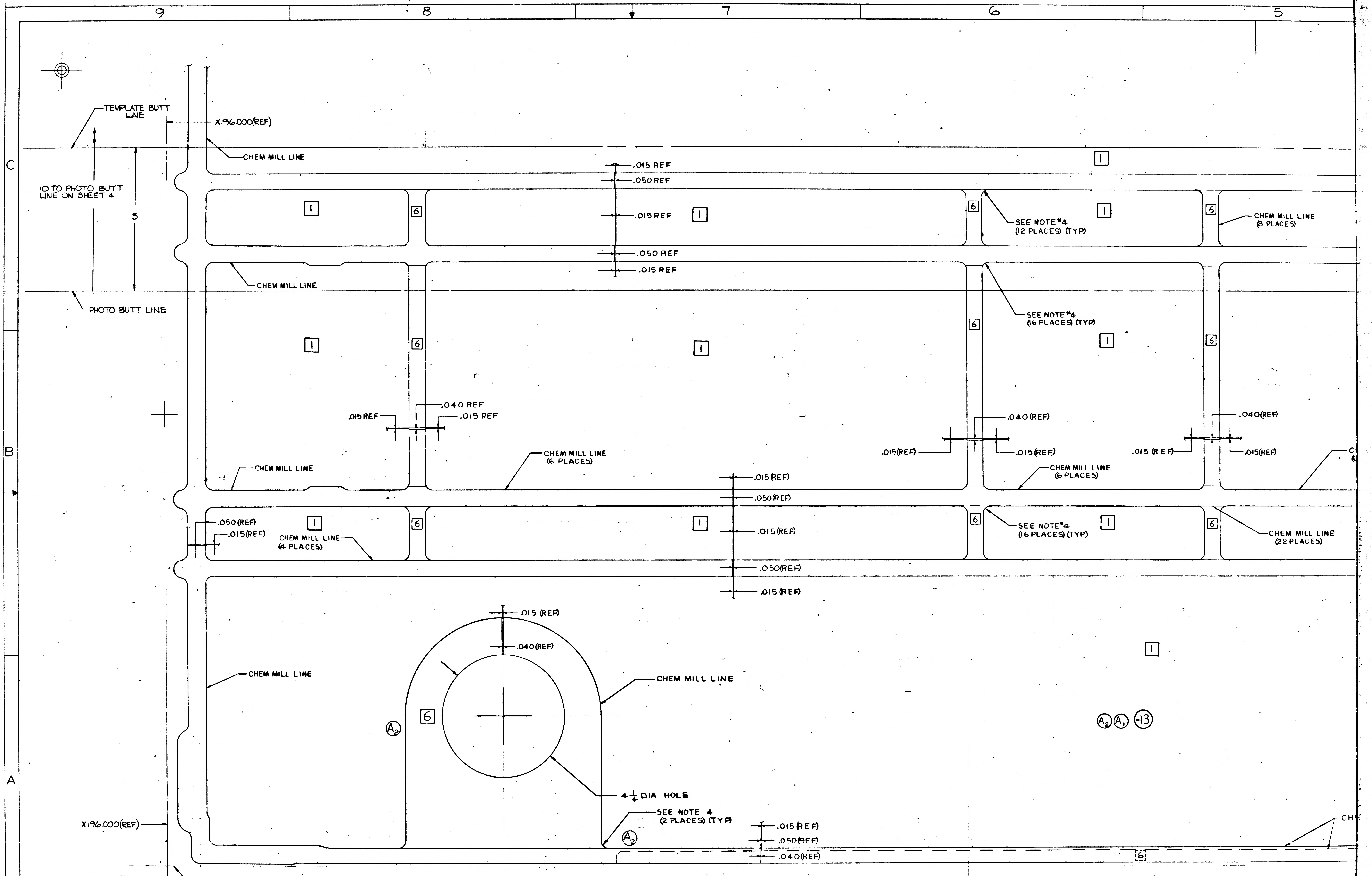
SIZE	CODE IDENT NO.		
B	26512	LDW280-18437	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
X196.000(REF)
CHEM MILL LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
.015 REF
.050 REF
.015 REF
.050 REF
.015 REF
1
6
SEE NOTE #4 (12 PLACES) (TYP)
CHEM MILL LINE (8 PLACES)
CHEM MILL LINE
PHOTO BUTT LINE
SEE NOTE #4 (16 PLACES) (TYP)
.015 REF
.040 REF
.015 REF
.040(REF)
.015(REF)
.015(REF)
.040(REF)
.015 (REF)
.015(REF)
CHEM MILL LINE
CHEM MILL LINE (6 PLACES)
CHEM MILL LINE (6 PLACES)
.015(REF)
.050(REF)
.015(REF)
.050(REF)
.015(REF)
.050 (REF)
.015(REF)
CHEM MILL LINE (4 PLACES)
SEE NOTE #4 (16 PLACES) (TYP)
CHEM MILL LINE (22 PLACES)
.015 (REF)
.040(REF)
CHEM MILL LINE
CHEM MILL LINE
A2
A2 A1 -13
4 1/4 DIA HOLE
SEE NOTE 4 (2 PLACES) (TYP)
X196.000(REF)
.015 (REF)
.050(REF)
.040(REF)
+Z27.000(REF)

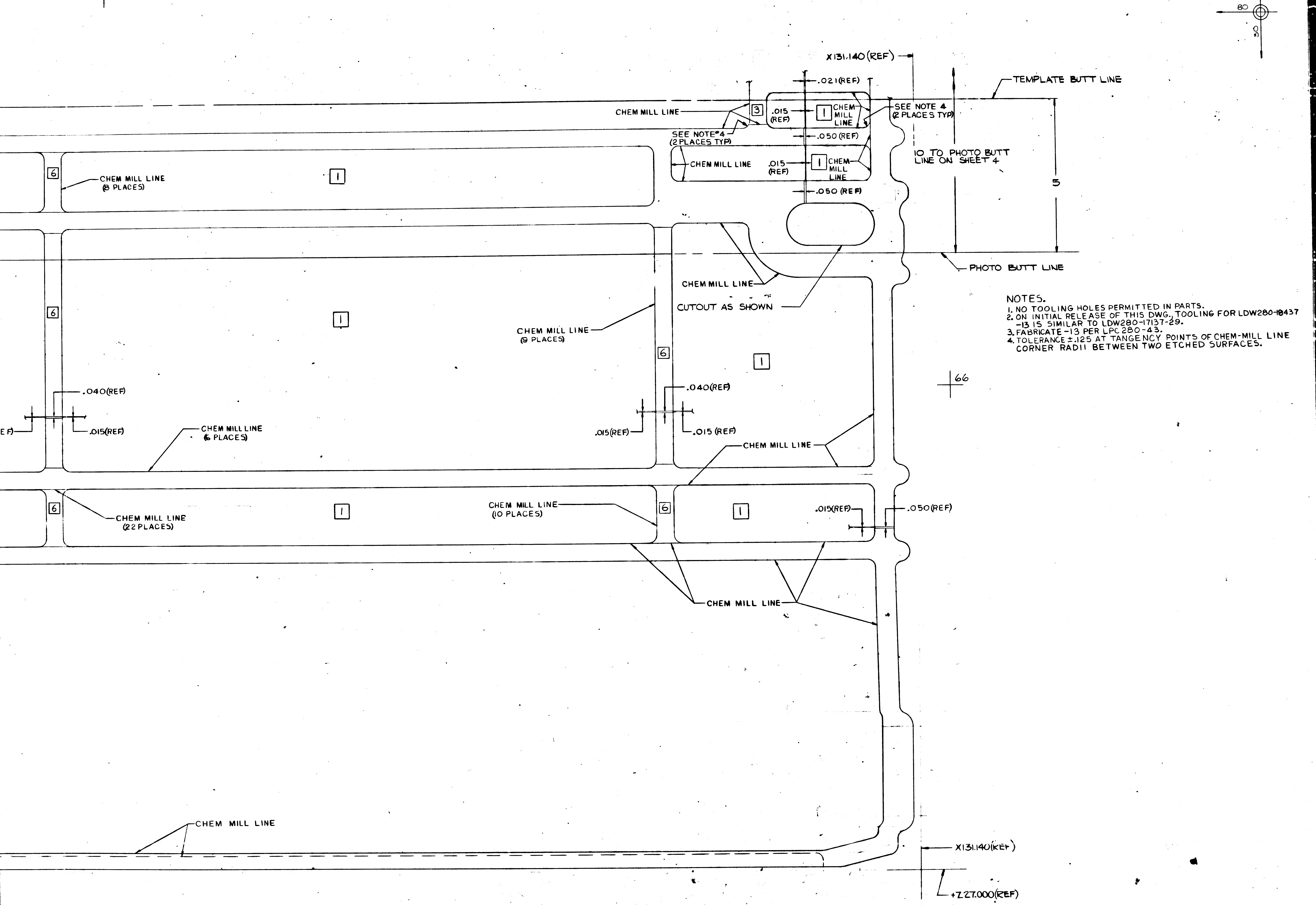
01/03

NAS 9-1100

CODE IDENT NO. 26512

LDW280-18437

SH 3


X131.140 (REF)
.021 (REF)
TEMPLATE BUTT LINE
CHEM MILL LINE
3
.015 (REF)
1
CHEM MILL LINE
SEE NOTE 4 (2 PLACES TYP)
SEE NOTE 4 (2 PLACES TYP)
.050 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
CHEM MILL LINE
.015 (REF)
1
CHEM MILL LINE
5
.050 (REF)
6
CHEM MILL LINE (8 PLACES)
1
PHOTO BUTT LINE
CHEM MILL LINE
CUTOUT AS SHOWN
6
1
CHEM MILL LINE (9 PLACES)
6
1
.040 (REF)
.040 (REF)
.015 (REF)
.015 (REF)
.015 (REF)
CHEM MILL LINE (6 PLACES)
CHEM MILL LINE
66
6
CHEM MILL LINE (22 PLACES)
1
CHEM MILL LINE (10 PLACES)
6
1
.015 (REF)
.050 (REF)
CHEM MILL LINE
CHEM MILL LINE
X131.140 (REF)
+Z27.000 (REF)
80
30
5
4
3
2
1

NOTES.

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG., TOOLING FOR LDW280-18437-13 IS SIMILAR TO LDW280-17137-29.
3. FABRICATE -13 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

MANUFACT
UNLESS C
NOTES CHECKED

RUBBER STAMP
AND ALL OTHE
IN REGION MA
USE BOTH SIDE

FILLET AND IN
RADII TOLERAN
.016R TO .062
.063R TO .250
OVER .250R

DEPTH SHOWN
HOLES IS FULL
BEYOND PERMI

EXTERNAL THR
SHOWN INCLUD
2 IMPERFECT T

DO NOT CADM
HOLES OR SUR
WITH DOUBLE

MISMATCH STE
PERMISSIBLE D
OF CUTTERS AT
INTERSECTING

DIAMETERS MA
MUST BE CON
READING

HOLES MUST B
CHROME PLAT

ALL DIMENSIO
AFTER CADMIU
THICKNESS OF
TO .0005 MAX.
BE .0002 ON T
NO ALLOWANC
HOLES

125 SURFA
INCLU
PER M

200 FOR A

REMOVE ALL E
BREAK ALL ED

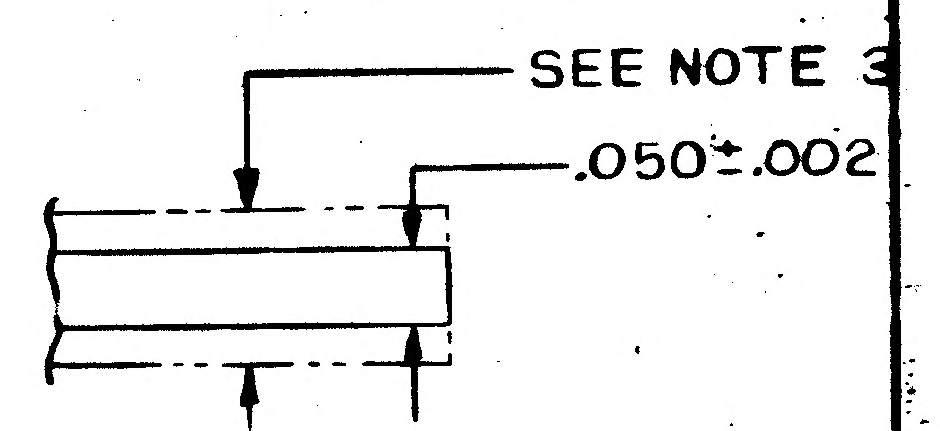
INSPECTION I
MINIMUM PER
AVERAGE EDG
MARKED

SYMBOL √ D
TO BE MACHI

UNLESS OTHE
TOLERANCE O

LENGTHS OF A
RIVETS SHORT
NOT SPECIFIE

TOLERANCE O
DELINEATIONS


SEE NOTE 3
.050±.002

FOR ENG REF ONLY
NO SCALE

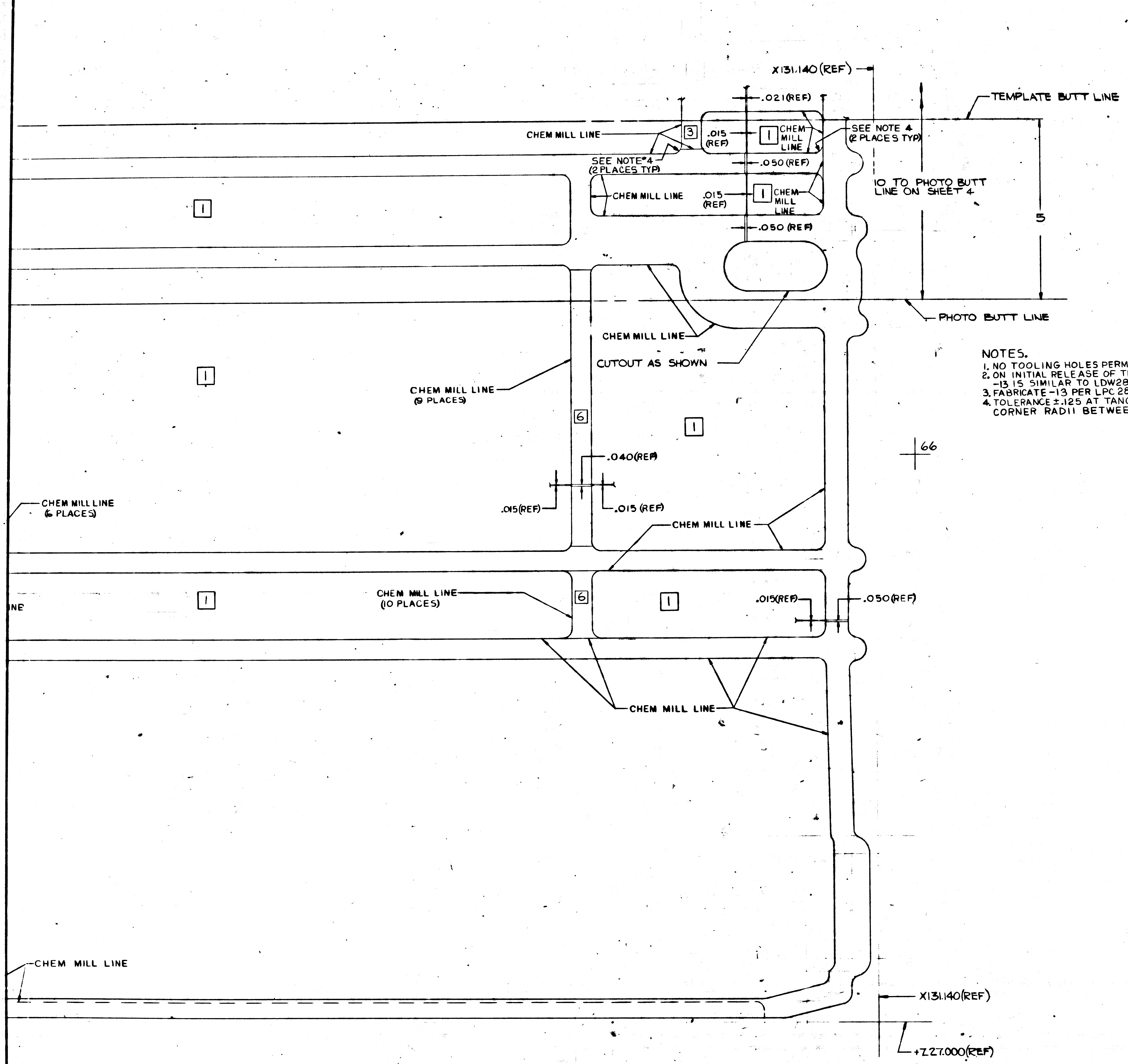
LDW280-18437-13

SYMBOL	CHEM-MILL TOLERANCE ±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040 THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.015±.002	.035 (REF)
2	.019±.002	.031 (REF)
3	.021±.003	.029 (REF)
4	$.025^{+.004}_{-.003}$	.025 (REF)
5	.030±.004	.020 (REF)
6	$.040^{+.005}_{-.004}$	.010 (REF)

E IDENT NO. 26512
W280-18437
SH 3

02/03
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP.
LM
MODEL OR END ITEM
SIZE J
CODE IDENT NO. 26512
LDW28
SCALE FULL
FOR PHOTO K


X131.140 (REF)
.021(REF)
TEMPLATE BUTT LINE
CHEM MILL LINE
3
.015 (REF)
1
CHEM MILL LINE
SEE NOTE 4 (2 PLACES TYP)
SEE NOTE 4 (2 PLACES TYP)
.050 (REF)
CHEM MILL LINE
.015 (REF)
1
CHEM MILL LINE
.050 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
5
1
PHOTO BUTT LINE
CHEM MILL LINE
CUTOUT AS SHOWN
1
CHEM MILL LINE (9 PLACES)
6
1
66
.040(REF)
.015(REF)
.015 (REF)
CHEM MILL LINE (6 PLACES)
CHEM MILL LINE
1
CHEM MILL LINE (10 PLACES)
6
1
.015(REF)
.050(REF)
CHEM MILL LINE
CHEM MILL LINE
X131.140(REF)
+Z27.000(REF)
80
30

NOTES.

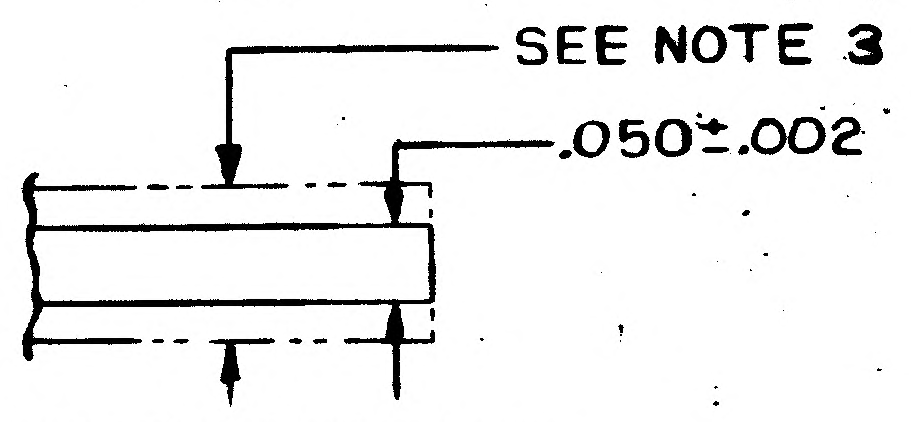
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG., TOOLING FOR LDW280-18437 -13 IS SIMILAR TO LDW280-17137-29.
3. FABRICATE -13 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 105)= 26.5 SQ FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.0 SQ FT.

PRINT TRIM LINE


SEE NOTE 3
.050±.002

FOR ENG REF ONLY
NO SCALE

LDW280-18437-13

CHEM-MILL TOLERANCE ±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.015±.002	.035 (REF)
2	.019±.002	.031 (REF)
3	.021±.003	.029 (REF)
4	$.025^{+.004}_{-.003}$	.025 (REF)
5	.030±.004	.020 (REF)
6	$.040^{+.005}_{-.004}$	.010 (REF)

LDW280-18437 A

LDW280-18437 A

03/03

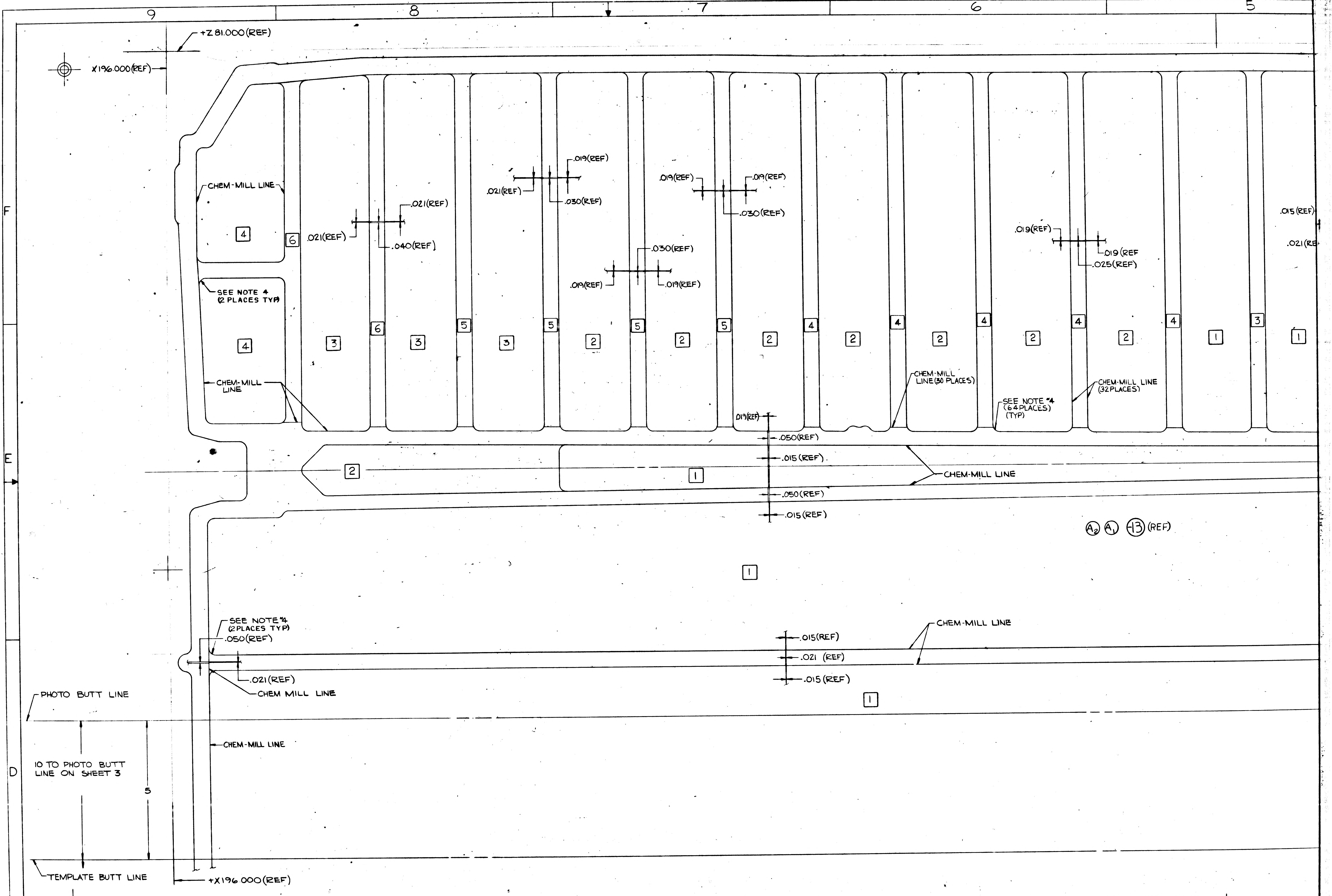
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18437	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

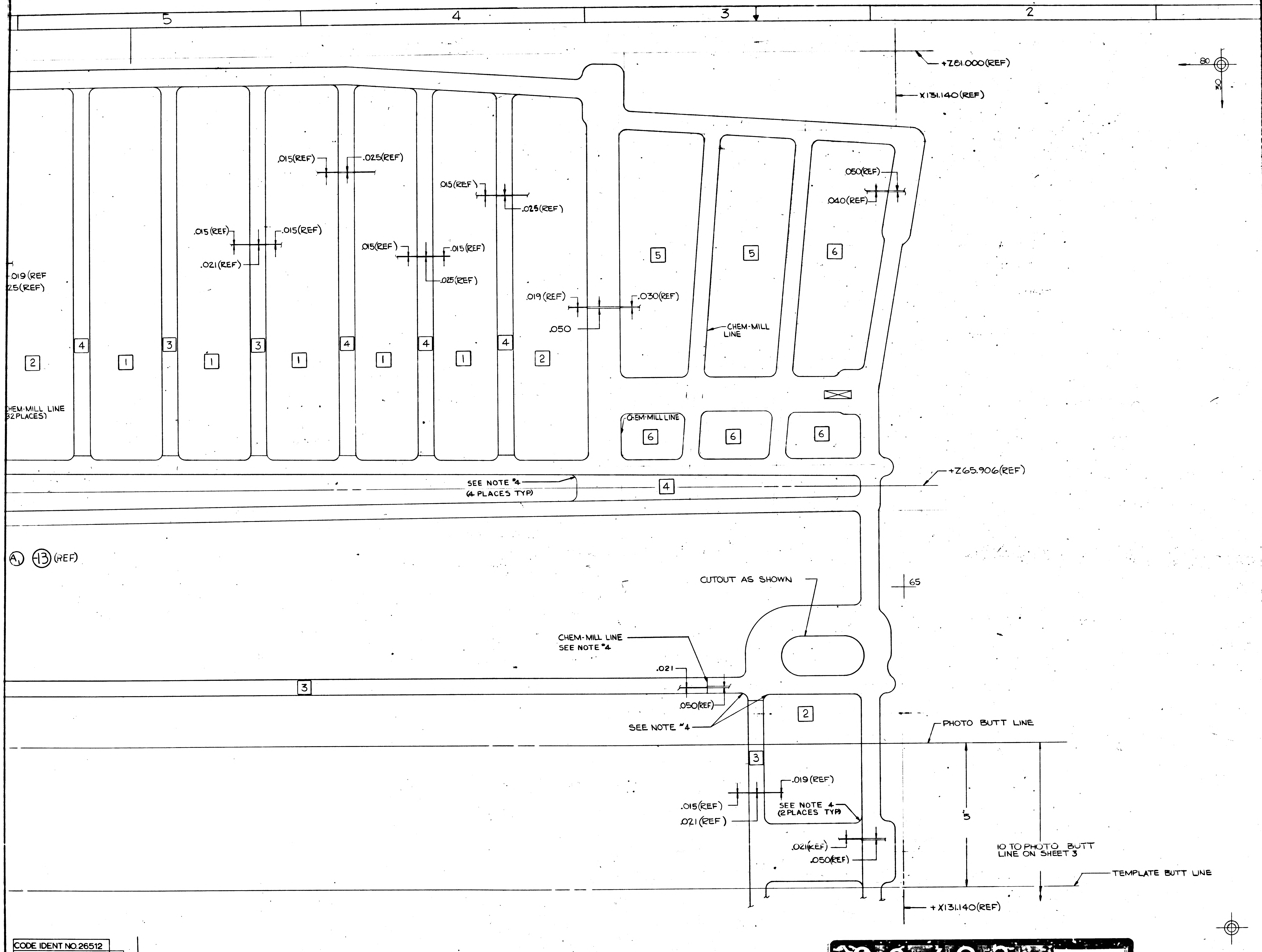
C B A


9
8
7
6
5
F
E
D
+Z 81.000 (REF)
X196.000 (REF)
CHEM-MILL LINE
4
6
.021 (REF)
.021 (REF)
.040 (REF)
.021 (REF)
.019 (REF)
.030 (REF)
.019 (REF)
.019 (REF)
.030 (REF)
.030 (REF)
.019 (REF)
.019 (REF)
.019 (REF)
.019 (REF
.025 (REF)
.015 (REF)
.021 (RE
SEE NOTE 4
(2 PLACES TYP)
4
3
6
3
5
3
5
2
5
2
5
2
4
2
4
2
4
2
4
2
4
1
3
1
CHEM-MILL
LINE
CHEM-MILL
LINE (30 PLACES)
SEE NOTE 4
(64 PLACES)
(TYP)
CHEM-MILL LINE
(32 PLACES)
.019 (REF)
.050 (REF)
.015 (REF)
2
1
CHEM-MILL LINE
.050 (REF)
.015 (REF)
A2 A1 -13 (REF)
1
SEE NOTE 4
(2 PLACES TYP)
.050 (REF)
.015 (REF)
.021 (REF)
.015 (REF)
CHEM-MILL LINE
.021 (REF)
CHEM MILL LINE
1
PHOTO BUTT LINE
10 TO PHOTO BUTT
LINE ON SHEET 3
5
CHEM-MILL LINE
TEMPLATE BUTT LINE
+X196.000 (REF)
9
8
5

01/03

NAS 9-1100

CODE IDENT NO. 26512	SH
LDW280-18437	4

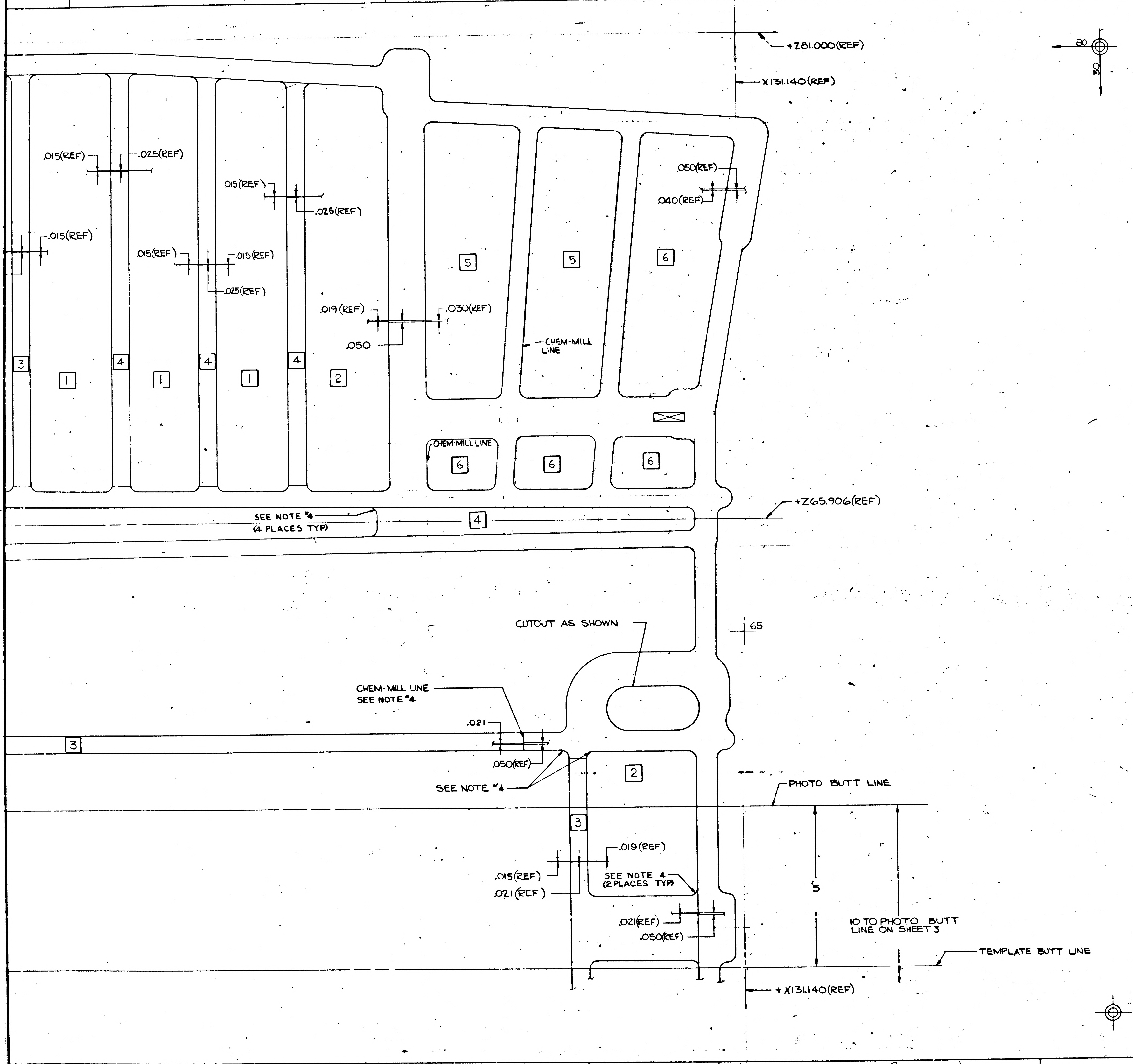

5
4
3
2
+Z81.000(REF)
X131.140(REF)
80
30
.015(REF)
.025(REF)
.015(REF)
.025(REF)
.050(REF)
.040(REF)
.015(REF)
.015(REF)
.021(REF)
.015(REF)
.015(REF)
.025(REF)
.019 (REF
.25(REF)
.019(REF)
.030(REF)
.050
CHEM-MILL LINE
5
5
6
2
4
1
3
1
3
1
4
1
4
1
4
2
HEM-MILL LINE
32 PLACES)
CHEM-MILL LINE
6
6
6
+Z65.906(REF)
SEE NOTE #4
(4 PLACES TYP)
4
A, -13 (REF)
CUTOUT AS SHOWN
65
CHEM-MILL LINE
SEE NOTE #4
.021
3
.050(REF)
SEE NOTE #4
2
PHOTO BUTT LINE
3
.019 (REF)
.015(REF)
.021 (REF)
SEE NOTE 4
(2 PLACES TYP)
5
.021(REF)
.050(REF)
10 TO PHOTO BUTT
LINE ON SHEET 3
TEMPLATE BUTT LINE
+X131.140(REF)
5
4
3

CODE IDENT NO.26512
LDW280-18437 SH 4

02/03 NAS 9-1100

	GRUMMAN AIRCRAFT E		
	SIZE	CODE IDENT NO	
LM	J	26512	L
MODEL OR END ITEM	SCALE FULL		

1 FOR PHO


4
3
2
+Z81.000(REF)
X131.140(REF)
80
30
.015(REF)
.025(REF)
.015(REF)
.025(REF)
.050(REF)
.040(REF)
.015(REF)
.015(REF)
.015(REF)
.025(REF)
.019(REF)
.030(REF)
.050
CHEM-MILL LINE
1
1
1
2
3
4
4
4
5
5
6
CHEM-MILL LINE
6
6
6
SEE NOTE #4
(4 PLACES TYP)
4
+Z65.906(REF)
65
CUTOUT AS SHOWN
CHEM-MILL LINE
SEE NOTE #4
.021
3
.050(REF)
SEE NOTE #4
2
PHOTO BUTT LINE
3
.019(REF)
.015(REF)
.021(REF)
SEE NOTE 4
(2 PLACES TYP)
5
.021(REF)
.050(REF)
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
+X131.140(REF)
4
3
2

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 105)= 26.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.0 SQ. FT.

PRINT TRIM LINE

1

F

E

LDW280-18437 A

LDW280-18437 A

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18437	A
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

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A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18437 | EO NO. A1
CONTROL INFO NO. LDW280A-8795

CREATE -11 WEB IDENTICAL TO LDW280-17137 -29WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T = S
EFF: N/A LDW280-23537 LTA-3D(13) 1REQD/MOD.
N/A LDW 280-54537 LM4(34) THRU LM15(45) 1REQ/MOD

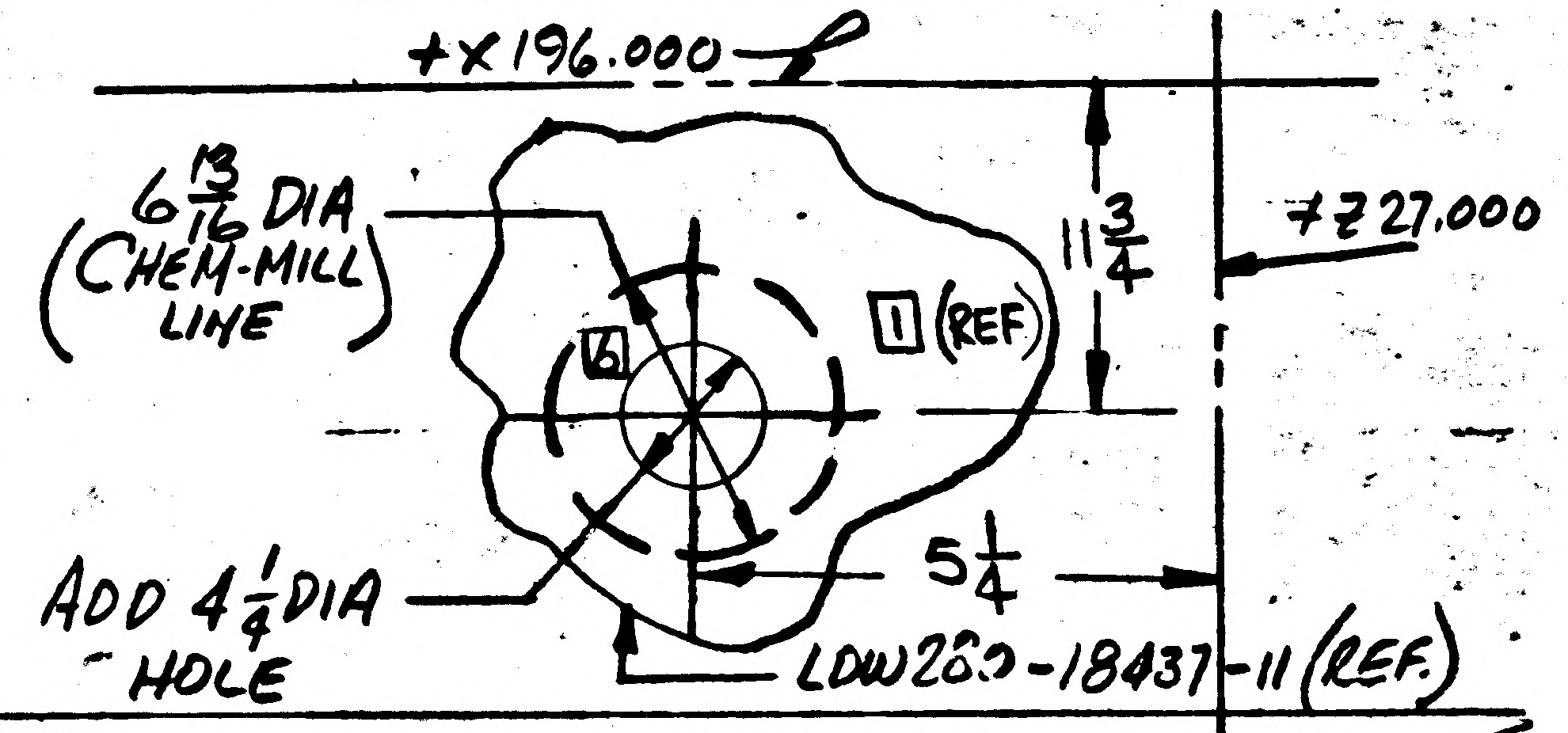
LDW280-17137 -29(REF)

(ADD) LDW280-18437-11 WEB (ADD)

-11 IDENTICAL TO LDW280-17137-29 REV F. INCLUDING EO G1, G2(LEO 545) G3 (LEO 599) G4

	CHEM-MIL LINE TOL.... (SAME)		
	SYMBOL	THICKNESS AFTER CM	DEPTH OF CUT
1 2	1	.015 ±.002	.035(REF)
3 4	2	.019 ±.002	.031(REF)
5	3	.021±.003	.029 (REF)
6	4	.025 +.004 -.003	.025(REF)
7	5	.030±.004	.020(REF)
8	6	.040 +.005 -.004	.010(REF

ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18437-11 IS SIMILAR TO LDW280-17137-29



* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1997	S

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	JK 8/22/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG * | RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQ | SCRAP

APPROVED BY					NM.		WRB	
DATE	8/18/67			8/18/67	8-19-67		8/21/67	8/22/67
	VDI	SUPPORT	REL IAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB - DESCENT STAGE - BEAM PANEL	LDW280-18437	A1

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

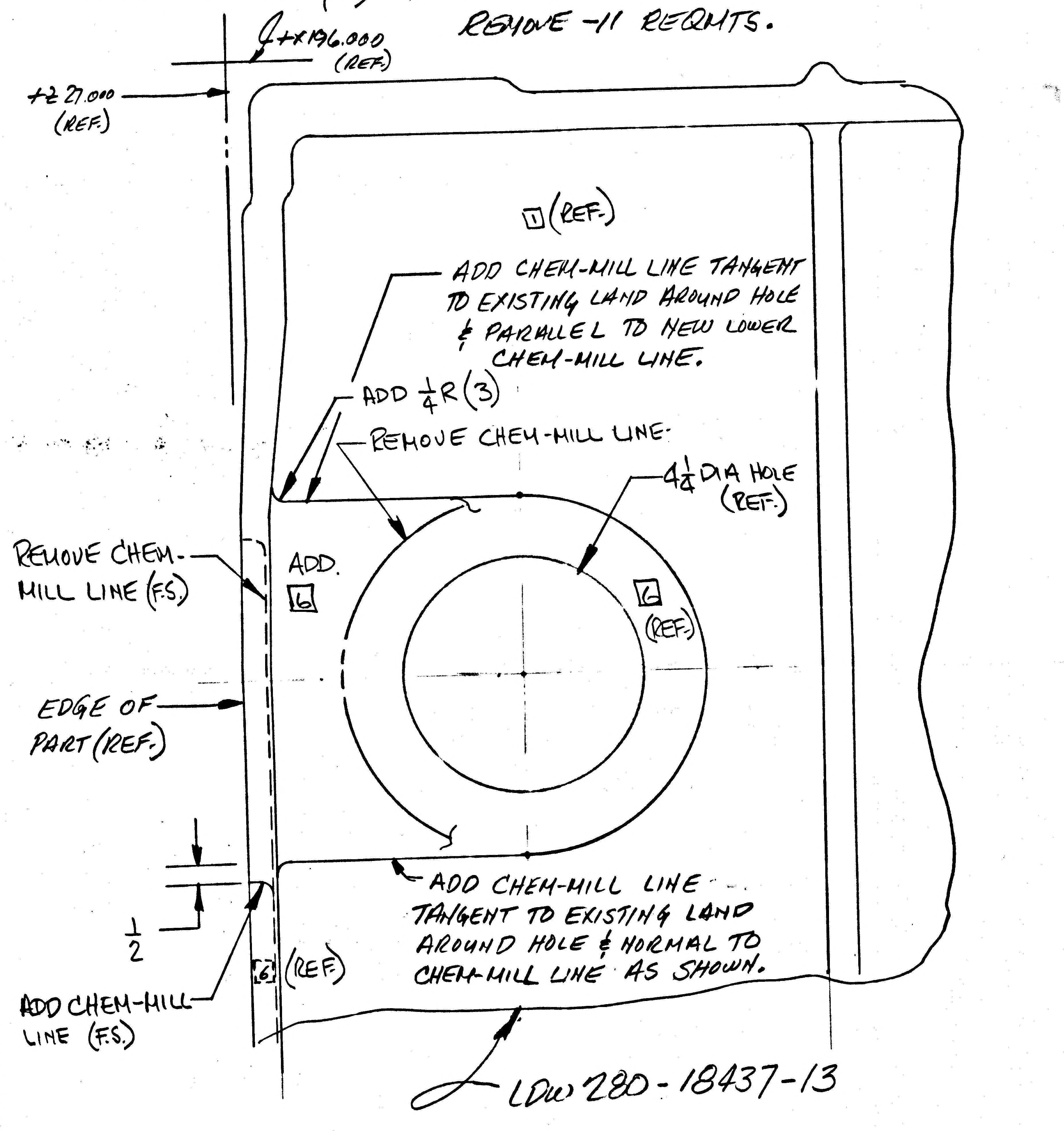
A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW 280-18437		EO NO. A2
CONTROL INFO NO. LDW280A8940		

ADD-13 IDENTICAL TO -11 EXCEPT AS NOTED.
-13 EFF LM-4 (34) THRU LM-15 (45) N/A LDW 280-54537
-13 EFF LTA-3D (13) N/A LDW 280-23537 1 REQ'D/MODULE.
REMOVE -11 REQMTS.


+X196.000 (REF.)
+Z 27.000 (REF.)
1 (REF.)
ADD CHEM-MILL LINE TANGENT TO EXISTING LAND AROUND HOLE & PARALLEL TO NEW LOWER CHEM-MILL LINE.
ADD 1/4 R (3)
REMOVE CHEM-MILL LINE.
4 1/4 DIA HOLE (REF.)
REMOVE CHEM-MILL LINE (F.S.)
ADD. 6
6 (REF.)
EDGE OF PART (REF.)
1/2
ADD CHEM-MILL LINE TANGENT TO EXISTING LAND AROUND HOLE & NORMAL TO CHEM-MILL LINE AS SHOWN.
6 (REF.)
ADD CHEM-MILL LINE (F.S.)
LDW 280-18437-13

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 5

REASON FOR EO: ADD CHEM-MILL LAND FOR SPLICING WEB TO SALVAGE WIRE RUNS.

DESCRIPTION OF EO: ADDED -13, REMOVED -11

GAEC C EO RELEASE: VC 8/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	
		LM-15 (45)	
		LTA-3D (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-11

	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JAP				NM		WRB	
DATE	8/25/67				8/26/67		8/26/67	8-26-67

PRIORITY: C

DRAWING TITLE: WEB ~ D.S. ~ BEAM PANEL. FWD R.H.

DRAWING NO.: LDW 280-18437

EO NO.: A2

9/4
ISSUED BY GUS HANSMANN X1153 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

01 NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCDL997

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FABRICATION PROCEDURE CHANGE	ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)	JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	8LTA-3D(13)

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	DATE
REVISE DWG ✓ / RECORD EO	NOT REQD (REWORK / SCRAP)		8/21/67

V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
			—	NM 8/23/67		8/24/67	8-28-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

	DWG	TITLE	CHANGE
✓	LDW280-18424	SEE DWG	B1
✓	-18425		B1
✓	-18426		B1
✓	-18427		B1
✓	-18428		B1
✓	-18429		B1
✓	-18430		B1
✓	-18431		B1
✓	-18432		B1
✓	-18433		B1
✓	-18434		B1
✓	-18435		B1
✓	-18436		B1
✓	-18437		B1
	-18438		B1
	-18439		B1
	-18441		B1
	-18442		B1
	LDW280-18443		B1
	LDW280-18444	SEE DWG	B1

01
NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE: C JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

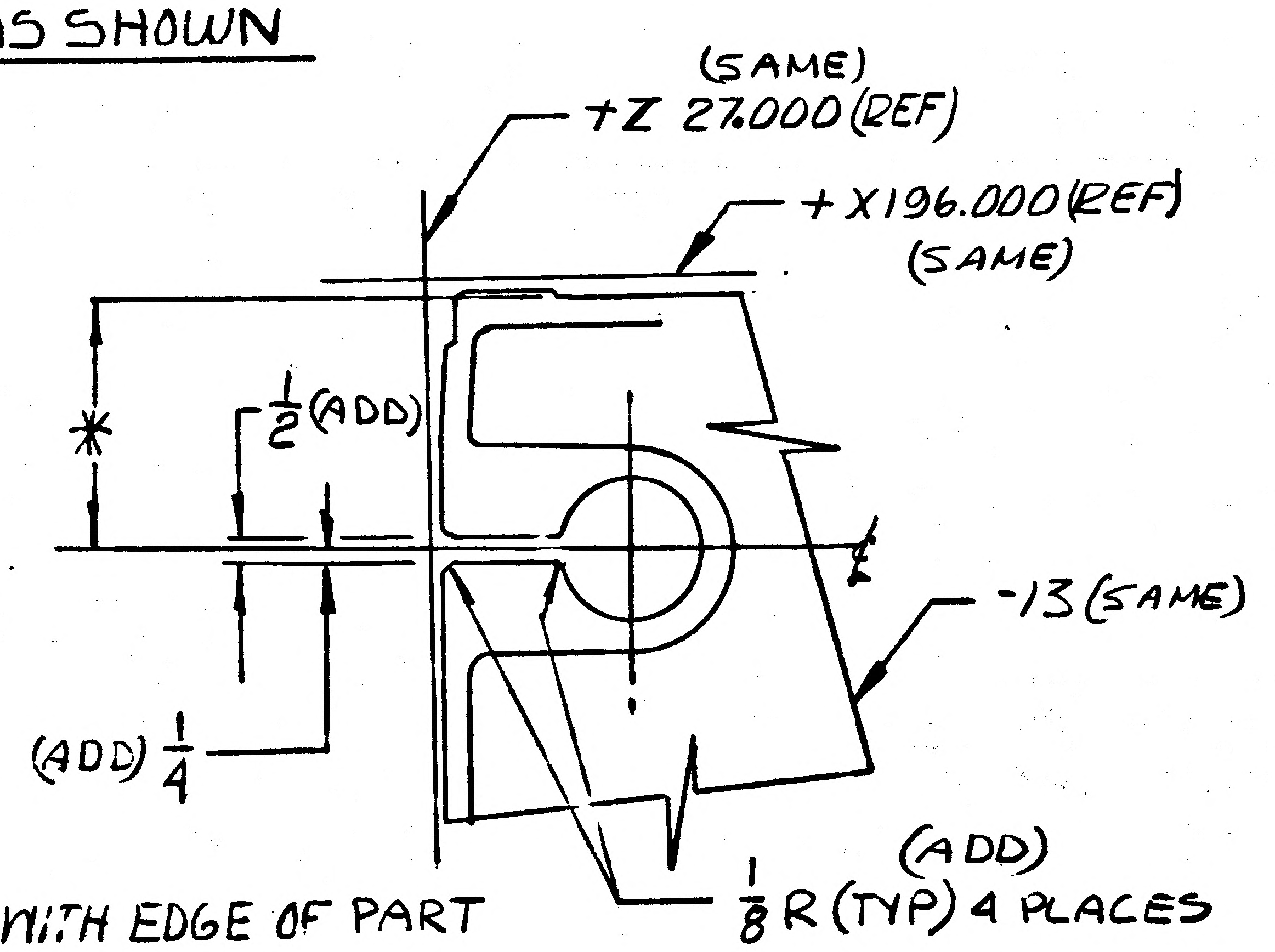
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18437 EO NO. B

CONTROL INFO NO. LDW280A8703

REVISE -13 AS SHOWN



* PARALLEL WITH EDGE OF PART

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 1397

REASON FOR EO: SALVAGE OF WIRE RUNS

DESCRIPTION OF EO: ADDED SLOT CUTOUT FOR -13

GAEC EO RELEASE: JK 9/9/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	9/8/67			9/8/67	9/8/67		9/13	9/9/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE BEAM PANEL-FWD R.H.	LDW280-18437	B2

9/9
ISSUED BY J. ANDERSEN / J. STRAKOSCH T1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18437		EO NO. B4
CONTROL INFO NO. LDW280A9624		

ADD -17 WEB IDENTICAL TO LDW280-17137 (REF. "F" DATED 10/13/66 & EO'S G1, G2, G3, G4) EXCEPT AS NOTED

-17 EFF LTA-3(13) N/A LDW280-23537 & LM-6(36) THRU LM-15(45) N/A LDW280-54537 1 REQD/MOD

-17 STOCK GAGE .063 PROCESS & FINISH "SEE NOTE *" ADD NOTE * "FABRICATE -17 PER LPC280-43"

-17 I & T = S

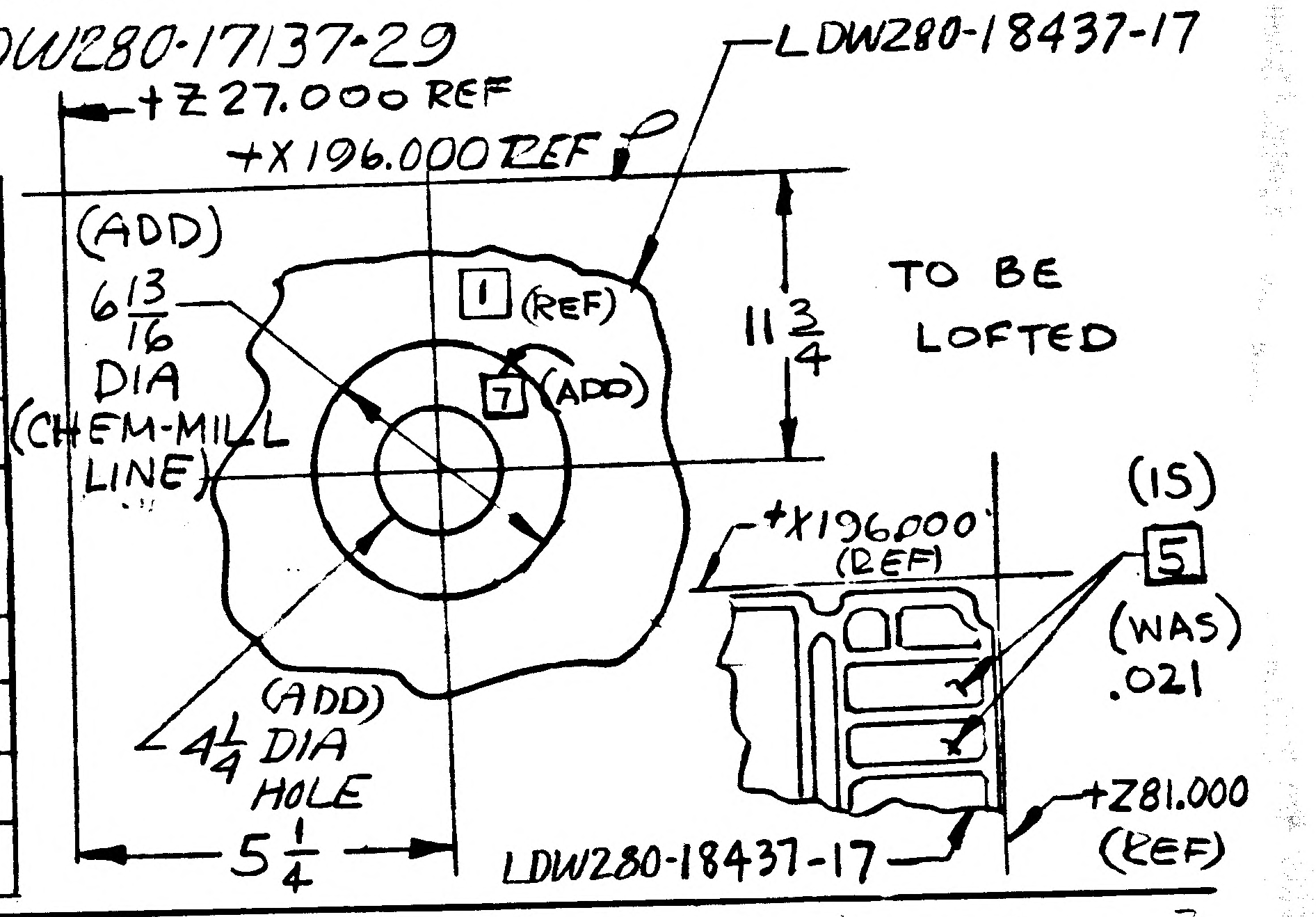
NOTES OF LDW280-17137 NOT APPLICABLE

REMOVE LTA-3(13) REQMTS FROM -13 REMOVE LM-6(36) THRU LM-15(45) REQMTS FROM -15

(REF) TOOLING FOR LDW280-18437-17 SIMILAR TO LDW280-17137-29

(WAS) (15)(EXCEPT AS NOTED)

LDW280-17137-29		LDW280-18437-17		
SYMBOL		SYMBOL	THICKNESS AFTER CHEM-MILL	DEPTH OF CUT
1	010	1	$.012^{+.003}_{-.002}$	.038 (REF)
2	013	2	$.015^{+.003}_{-.002}$	.035 (REF)
3	016	3	.019 ± .003	.031 (REF)
4	019			
5	021	4	$.021^{+.004}_{-.003}$	.029 (REF)
6	025	5	.025 ± .004	.025 (REF)
7	030	6	$.030^{+.005}_{-.004}$	.020 (REF)
8	040	7	.040 ± .005	.010 (REF)



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 2220

3

REASON FOR EO: REVISE MIN. WEB GAGE

DESCRIPTION OF EO:
ADDED -17 & NOTE *
REMOVED LTA-3(13) REQMTS FROM -13
REMOVED LM-6(36) THRU LM-15(45) REQMTS FROM -15

Ⓡ GAEC EO RELEASE 10/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓ -13 -15

APPROVED BY									
DATE	10/16/67				10-13-67	10/17/67		10/16/67	10/17-67
B	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: WEB-DESCENT STAGE BEAM PANEL FWD L.H.

DRAWING NO.: LDW280-18437

EO NO.: B4

ISSUED BY J. ANDERSEN / J. STRAKOSCH 10/20 J. LANG X1153

SECTION VDI 10/17

GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18430 ✓	C4	SEE DWG
-18431 ✓	C2	↑
-18432 ✓	C1	
-18433 ✓	C2	
-18434 ✓	C1	
-18435 ✓	B4	
-18436 ✓	C2	
-18437 ✓	B6	
-18438	C1	↓
LDW280 -18439	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69

PRIORITY C

DRAWING TITLE SEE DWG

DRAWING NO. LEO 280

EO NO. 1376

052B69 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18437 | EO NO. B8
CONTROL INFO NO. LDW280B9074

FOR -17
N/A LDW280-54537 REMOVE LM-10(40) THRU LM-14(44)
AND LTA-11(23) EFF.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG. 65 (5)

REASON FOR EO: BATTERY RELOCATED TO AFT BULKHEAD

DESCRIPTION OF EO: FOR -17 N/A LDW280-54537 REMOVED LM-10(40) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE: JK 10/9/69 B8

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40)	THRU LM-14	(44) AND
	LTA-11(23)		

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓			-13 -17

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/8/69			10-6-69	10/8/69		10/8/69	10/9/69
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-LHF-BP	LDW280-18437	B8

CDR100869
ISSUED BY PAT GARAHAN / GUS HANSMANN SECTION VEH DES INT X87222 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18438 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23538	LM-5(35)	1
LM	LDW280-23538	LM-4(34)	1
PART NO. LDW280-18438 -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23538	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM	LDW280-23538	LM-6(36)	1
LM	LDW280-23538	LTA-3D/R(46)	1
LM	LDW280-23538	LTA-3 (13)	1
PART NO. LDW280-18438-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	B				
SHEET			1.11						
REV			B						
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO (B)	
LAST DASH NO. USED	-19	PRIM NO.	JK(001)
		207	E 168-12/30/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1997	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II.

DRAWN BY	R. NISBET 8-24-67	RELIABILITY	
LAYOUT BY	PLANTE 8-17-67		
CHECKED BY	J Kartzmar 9-21-67		
GR LEADER			
VEH.DES.INT	9/23/67		
STRUCTURES	WB W.H. 9/22/67	PROJ ENGR	9/23/67
STRUCTURES	9/23	REL GROUP	9-27-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-BEAM PANEL ENG
COMPARTMENT L H

SIZE	CODE IDENT NO.		
B	26512	LDW280-18438	B
SCALE	NONE	SHEET 1.00 OF 6	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00, 1.10, 2.00 3.00 & 4.00				✓		E.O. A1 LCD 1997	E.O. A1 INITIAL DWG RELEASE PARTS MADE PER E.O.	LTA-3D & LM-4 THRU LM-15	NOT	REQD	R. NISBET 9-1-67 JK		9-27-67
	2					✓		E.O. A2 LCD 1997	ADDED -13, REMOVED -11 REQUIREMENTS			-11			
	3	1.10				✓		E.O. A3 LCD 1997	REF E.O. A1 LDW280-17638-17 WAS LDW280-17638-15		NOT	REQD			
	4	1.00, 1.10, 2.00, 3.00 & 4.00				✓		E.O. A4 LCD 1997	ADDED -15 REMOVED -13			-13			
	5	1.10, 3.00				✓		LE0280-696 LCD 1997	ADDED NOTE *(*) REMOVED NOTE *(X, Y, Z)		NOT	REQD			
	6	1.00, 1.10, 2.00, 3.00 & 4.00				✓		LE0280-698 LCD 1997	ADDED -17, REMOVED -15			-15			
	7	1.10							REF E.O. A1 & A5 ALL NOTES NOT APPLICABLE ADDED NOTES 1, 2, 3 & 4		NOT	REQD			
B	1	1.10 & 3.00 1.00	2B			✓		LEO 280 706 LCD 1997	ON -17 REVISED CHEM MIL TOLERANCE .015 $^{+.003}_{-.002}$ (WAS) .015 ± .002	LTA-3 & LM-4 THRU LM-15	NOT	REQD	G. WIEBER 12-13-68		
	2	4.00	8F				✓	EOB2 LCD 1997	ON -17, IN F/D, ADDED 1/2" SLOT		✓				
	3	1.00, 2.00 3.00 & 4.00	8F	B		✓	✓	EOB3 LCD 2183, LCD 1997 & LCD 2220	ADDED -19 & NOTE 5 REMOVED LM-6(36) THRU LM-15(45), LTA-3(13) REQMTS FROM -17	LTA-3, LM-6 THRU LM-15		-17			
	4	4.00	8F				✓	EOB4 LCD 1997	ON -17 & -19 IN FLD/DWG, REVISED 1/2" SLOT BY ADDING 5/8 x 1/2 & 5/8 x 1/4 END TRIMS	LTA-3, LM-4 THRU LM-15	✓				
	5	1.00		B			✓	EOB5 LCD 2220	REF EOB3. ADDED LTA-3(13) REQMTS TO -19, REMOVED LTA-3(13) REQMTS FROM -17	LTA-3		-17	H.D. ES		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A	—	9/23/67	WB	9/23/67		
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18438	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
B	6	1.00 1.11				✓		LEO280 987 LCD 3174	FOR -19 ADDED LTA-3D/R EFF. ADDED SH. 1.11	LTA-3D/R	NOT	REQD	WIEBER 12-13-68	☒	☒
	7		8F				✓	LCD 1997 ®	REF EO B4: IN DESCRIPTION OF EO, ON -17 & -19 SHOULD BE ON -17 & EFF LTA-3D, LM-4 THRU LM-15 SHOULD BE LM-4 & LM-5	LM-4 & LM-5	NOT	REQD	DEUTSCH 12-13-68	F. [illegible] 12-13-68 12/20/68	

CHG APPROVED										
LTR	GROUP LDR	VEH. DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
B	12-13-68 Thompson	12/19/68	LB	WJK 12/20/68						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18438	B

SCALE NONE

SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100-

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18438-19	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050x57x68	SEE NOTE 5	SEE NOTE 5	
		LDW280-18438-17	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X57X68	SEE NOTE 3	SEE NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

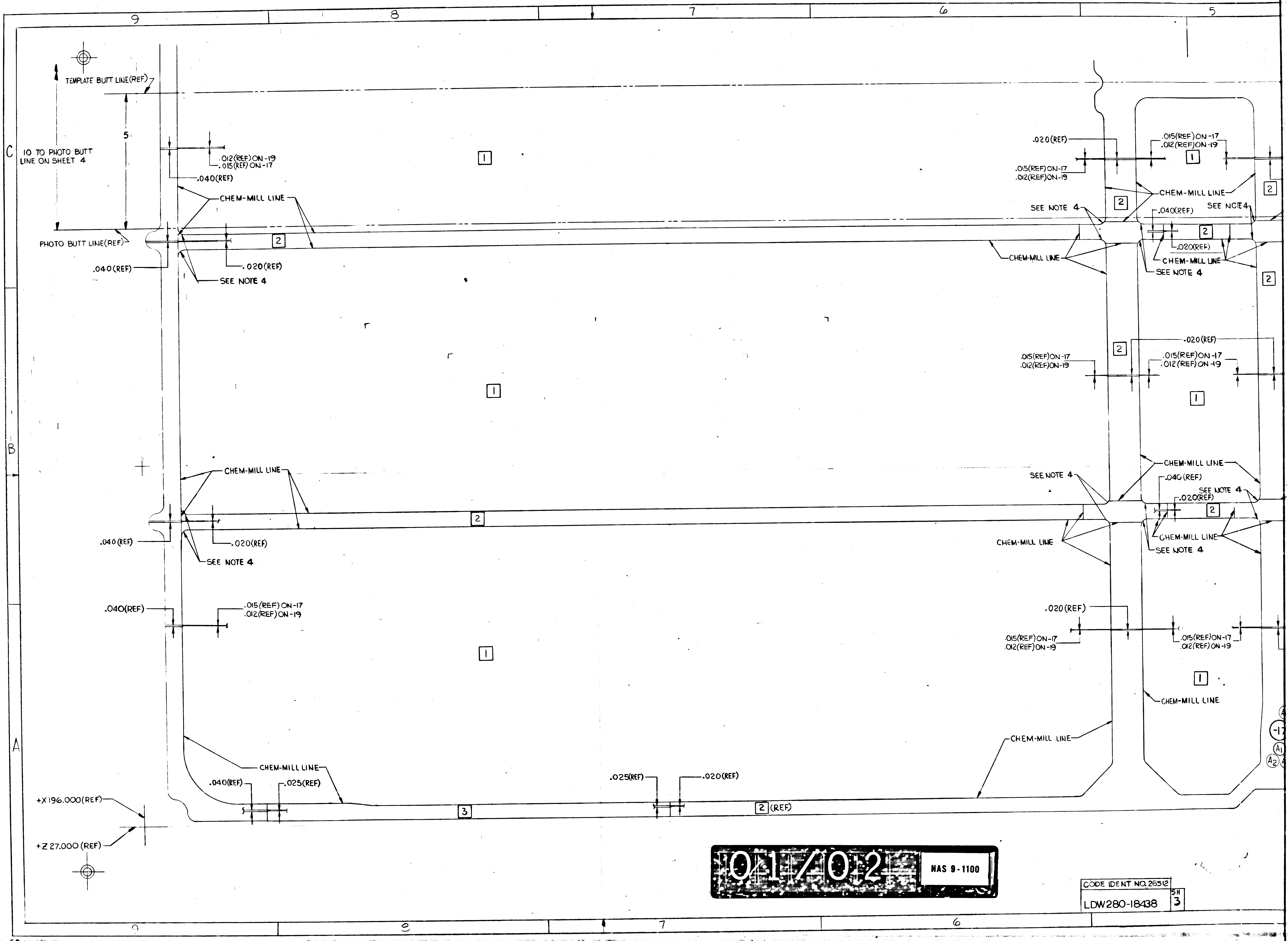
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18438	B
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

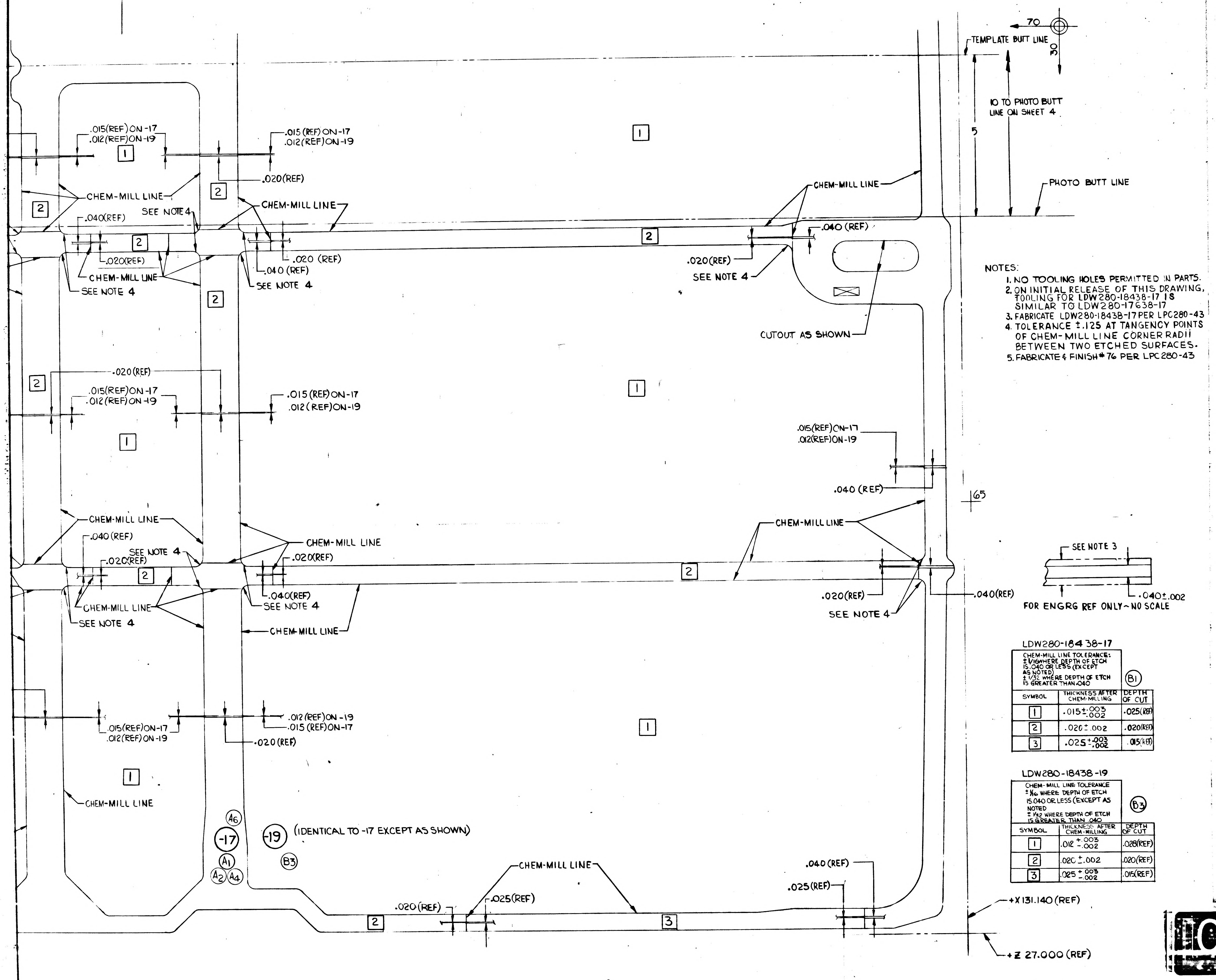
01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE (REF)
5
10 TO PHOTO BUTT LINE ON SHEET 4
PHOTO BUTT LINE (REF)
.012(REF)ON-19
.015(REF)ON-17
.040(REF)
CHEM-MILL LINE
.040(REF)
.020(REF)
SEE NOTE 4
1
2
3
2 (REF)
.020(REF)
.015(REF)ON-17
.012(REF)ON-19
SEE NOTE 4
.040(REF)
.025(REF)
+X 196.000(REF)
+Z 27.000 (REF)
.025(REF)
.020(REF)
-17
A1
A2

01/02 NAS 9-1100

CODE IDENT NO. 26512
LDW280-18438
SH 3


5
4
3
2
1
70
30
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
.015 (REF) ON -17
.012 (REF) ON -19
.020 (REF)
CHEM-MILL LINE
SEE NOTE 4
.040 (REF)
.020 (REF)
.040 (REF)
CUTOUT AS SHOWN
65
SEE NOTE 3
.040±.002
FOR ENGRG REF ONLY~NO SCALE
.020 (REF) ON -19
.015 (REF) ON -17
A6
-17
A1
A2
A4
-19
B3
(IDENTICAL TO -17 EXCEPT AS SHOWN)
.025 (REF)
+X 131.140 (REF)
+Z 27.000 (REF)
1
2
3

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR LDW280-18438-17 IS SIMILAR TO LDW280-17638-17
3. FABRICATE LDW280-18438-17 PER LPC280-43
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
5. FABRICATE & FINISH #76 PER LPC280-43

LDW280-18438-17

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

(B1)

SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.015^{+.003}_{-.002}$	.025 (REF)
2	.020 ± .002	.020 (REF)
3	$.025^{+.003}_{-.002}$	.015 (REF)

LDW280-18438-19

CHEM-MILL LINE TOLERANCE
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

(B3)

SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.012^{+.003}_{-.002}$	.028 (REF)
2	.020 ± .002	.020 (REF)
3	$.025^{+.003}_{-.002}$	.015 (REF)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25. SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-18438 B

LDW280-18438 B

02/02

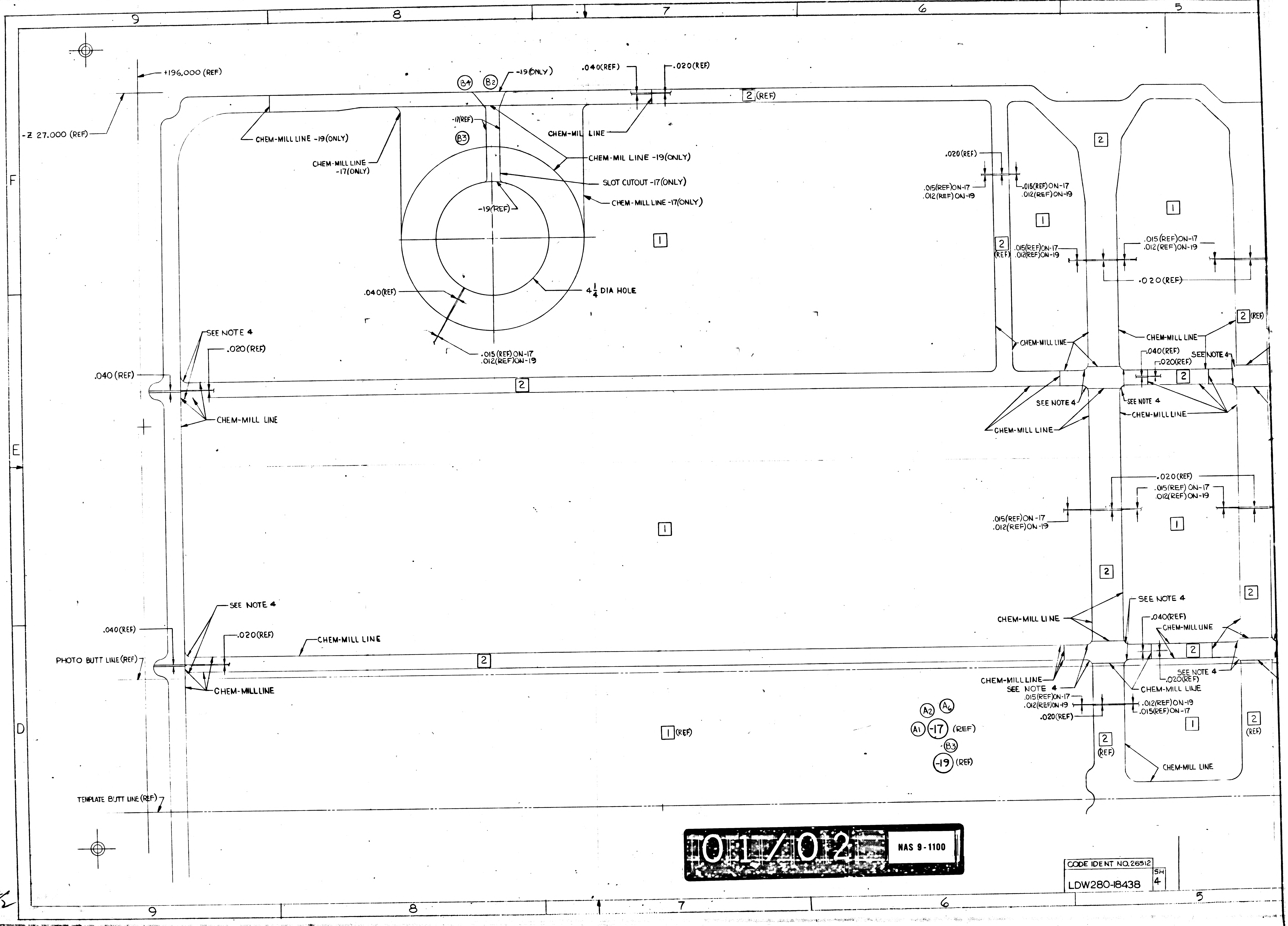
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-18438	B
	SCALE FULL			SHEET 3.00

1 FOR PHOTO REPRODUCTION K2

IDENT NO. 26512
280-18438
SH 3



+196.000 (REF)
-Z 27.000 (REF)
B4
B2
-19(ONLY)
.040(REF)
.020(REF)
2 (REF)
CHEM-MILL LINE -19(ONLY)
CHEM-MILL LINE -17(ONLY)
-17(REF)
B3
CHEM-MILL LINE
CHEM-MIL LINE -19(ONLY)
SLOT CUTOUT -17(ONLY)
CHEM-MILL LINE -17(ONLY)
-19(REF)
4 1/4 DIA HOLE
.040(REF)
.015 (REF) ON-17
.012(REF)ON-19
1
2
.020(REF)
.015(REF)ON-17
.012(REF)ON-19
.015(REF)ON-17
.012(REF)ON-19
SEE NOTE 4
.020(REF)
.040 (REF)
CHEM-MILL LINE
SEE NOTE 4
CHEM-MILL LINE
.040(REF)
.020(REF)
SEE NOTE 4
2 (REF)
SEE NOTE 4
CHEM-MILL LINE
.020(REF)
.015(REF) ON-17
.012(REF) ON-19
.015(REF)ON-17
.012(REF)ON-19
SEE NOTE 4
.020(REF)
.040(REF)
CHEM-MILL LINE
PHOTO BUTT LINE (REF)
CHEM-MILL LINE
SEE NOTE 4
.040(REF)
CHEM-MILL LINE
SEE NOTE 4
.020(REF)
CHEM-MILL LINE
.015(REF)ON-17
.012(REF)ON-19
.012(REF)ON-19
.015(REF)ON-17
.020(REF)
1 (REF)
A2
A6
A1
-17 (REF)
B3
-19 (REF)
2 (REF)
CHEM-MILL LINE
TEMPLATE BUTT LINE (REF)
9
8
7
6
5
F
E
D
2/2

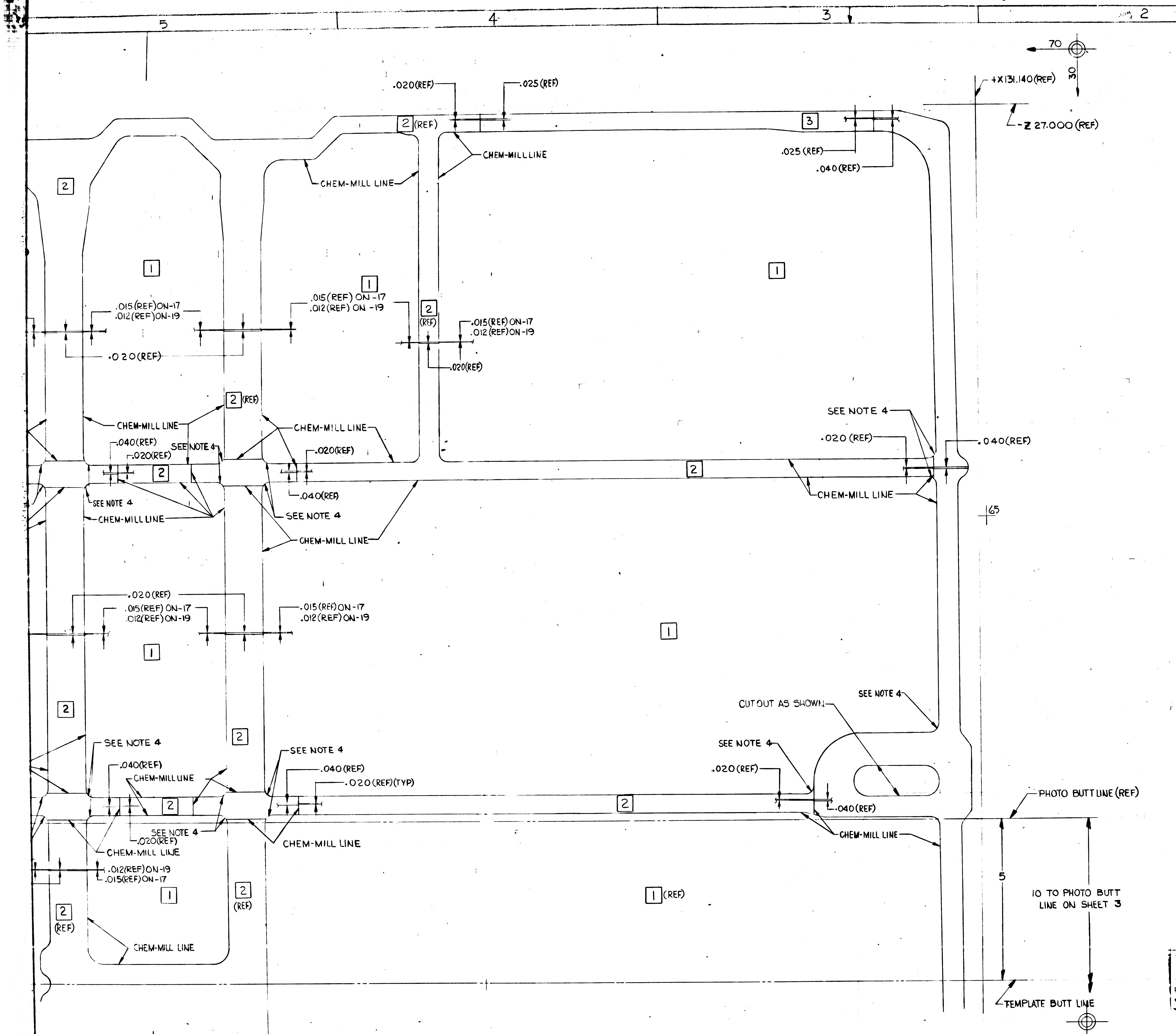
01/02

NAS 9-1100

CODE IDENT NO.26512

LDW280-18438

SH 4


5
4
3
2
1
70
30
.020(REF)
.025(REF)
2 (REF)
3
+X131.140(REF)
-Z 27.000(REF)
CHEM-MILL LINE
.025(REF)
.040(REF)
2
1
.015(REF) ON-17
.012(REF) ON-19
.020(REF)
2 (REF)
.015(REF)ON-17
.012(REF)ON-19
.020(REF)
SEE NOTE 4
.020 (REF)
.040(REF)
CHEM-MILL LINE
.040(REF)
.020(REF)
SEE NOTE 4
2
.020(REF)
.040(REF)
SEE NOTE 4
CHEM-MILL LINE
65
.020(REF)
.015(REF)ON-17
.012(REF)ON-19
.015(REF)ON-17
.012(REF)ON-19
CUTOUT AS SHOWN
SEE NOTE 4
.040(REF)
CHEM-MILL LINE
.040(REF)
.020(REF)(TYP)
.020(REF)
.040(REF)
PHOTO BUTT LINE (REF)
SEE NOTE 4
.020(REF)
CHEM-MILL LINE
.012(REF)ON-19
.015(REF)ON-17
1 (REF)
2 (REF)
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
F
E
D

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25. SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

LDW280-18438 B

LDW280-18438 B

02/02 NAS 9-1100

E IDENT NO. 26512
W280-18438 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-18438	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18438
EO NO. A1
CONTROL INFO NO. LDW280-18796

CREATE -11 WEB IDENTICAL TO LDW280-17638-15 WEB EXCEPT AS SHOWN.
NOTE 3 NOT APPLICABLE I&T = NONE
EFF: N/A LDW280-23538 LM4(34) THRU LEM 15(45) & LTA-3D(13)

-11 1 REQ/MOD

(REF)	(ADD)		
	LDW280-18438-11		
LDW280	CHEM-MILL LINE TOL.... (SAME)		
17638-15	SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1			
2	1	.015 ±.002	.025(REF)
3			
4	2	.020 ±.002	.020(REF)
5	3	.025 +.003 -.002	.015(REF)

ADD NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18438-11 IS SIMILAR TO LDW280-17638-15

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO
IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS

DESCRIPTION OF EO
EO A1 INITIAL DWG RELEASE
PARTS MADE PER EO

GAEC EO RELEASE: VK 8/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	LM15(45)
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ — REWORK / SCRAP

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	WB			
DATE	8/16/67			—	8/17/67		8/17/67	8-18-67

PRIORITY: C
DRAWING TITLE: DESCENT ~~STAGE~~ WEB -BEAM PANEL ENG. COMPARTMENT L.H
DRAWING NO: LDW280-18438
EO NO.: A1

8/18
ISSUED BY PLANTE 1153 SECTION VD1 GROUP NO. 335 PL 25

01

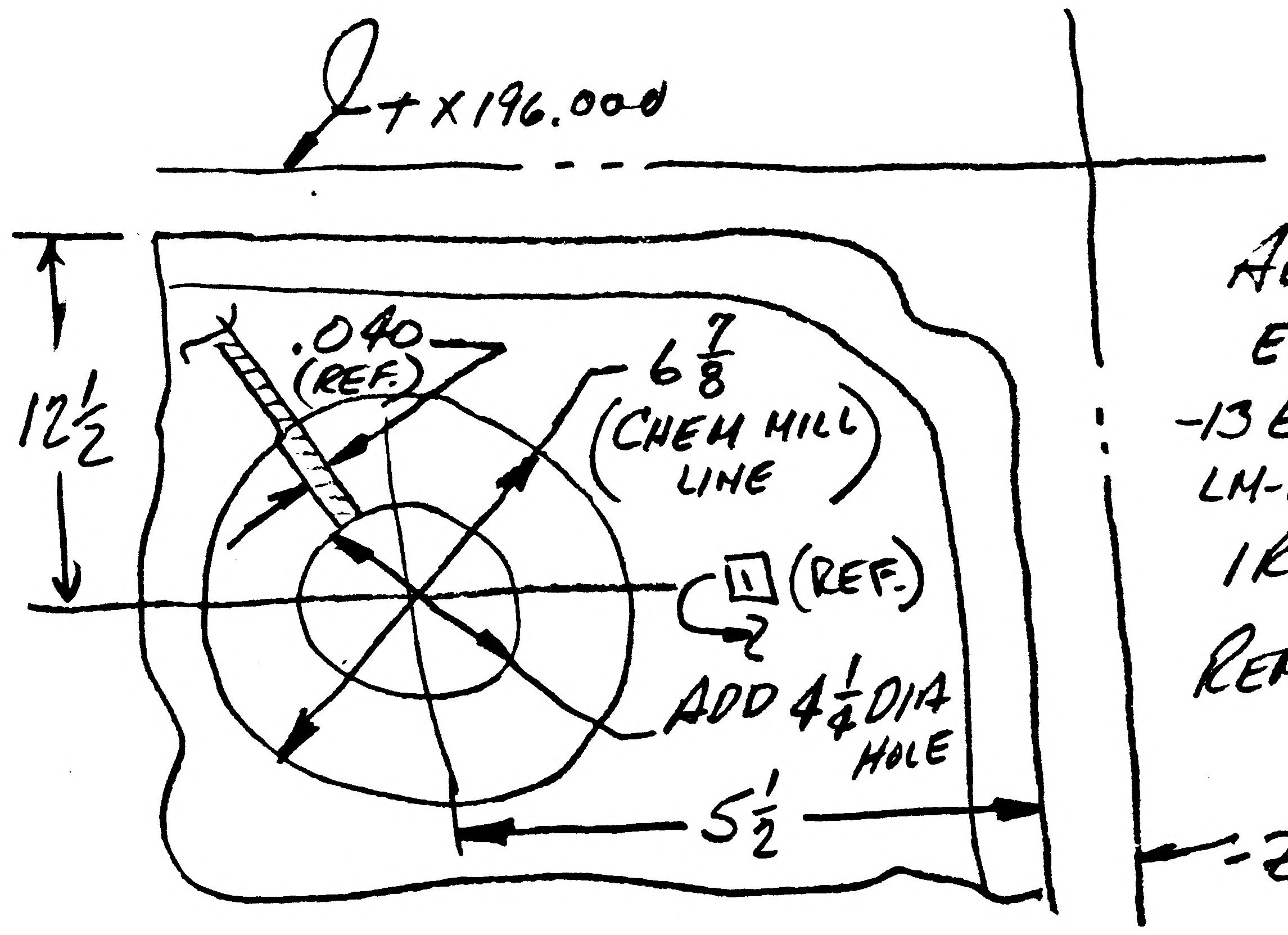
NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18438	EO NO. A2
CONTROL INFO NO. LDW 280A 8858	



ADD -13 IDENTICAL TO -11
EXCEPT AS NOTED
-13 EFF LTA-3D (13) LM-4 (34) THRU
LM-15 (45), N/A LDW 280-23538
1 REQ'D PER MODULE.

REMOVE -11 REQMTS.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1997

REASON FOR EO: ADD CHEM-MILL LAND FOR DOUBLER RIVETING TO ELIMINATE BONDING.

DESCRIPTION OF EO: ADDED -13, REMOVED -11 REQMTS.

GAEC EO RELEASE: JK 8/22/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13)	
		LM-4 (34) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓			-11	DATE	8/19/67			8/19/67	WB NM 8/21/67		WHB 8/21/67	8/22/67
					VDI	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB ~ D.S. ~ BEAM PANEL ENG. COMPT. L.H.	LDW280-18438	A2

8/23
ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18438 | EO NO. A3
CONTROL INFO NO. LDW280A8873

(REF) LDW280-17638-15 WEB S/B LDW280-17638-17 WEB

THIS IS A REVISION OF EO A1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1997 ok

5

REASON FOR EO: IMPROVE MFG QUALITY OF CHEM-MILL PANELS

DESCRIPTION OF EO: REF E.O. A1
LDW280-17638-17 WAS LDW280-17638-15

(R) GAECW C EO RELEASE: JK 8/23/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		& LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY				—	NM		WRB	
DATE	8/21/67			—	8/23/67		8/23/67	8-24-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB - D.S. BEAM PNL - LH ENG COMPT	LDW280-18438	A3

8/25
ISSUED BY PLANZE 115-3 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

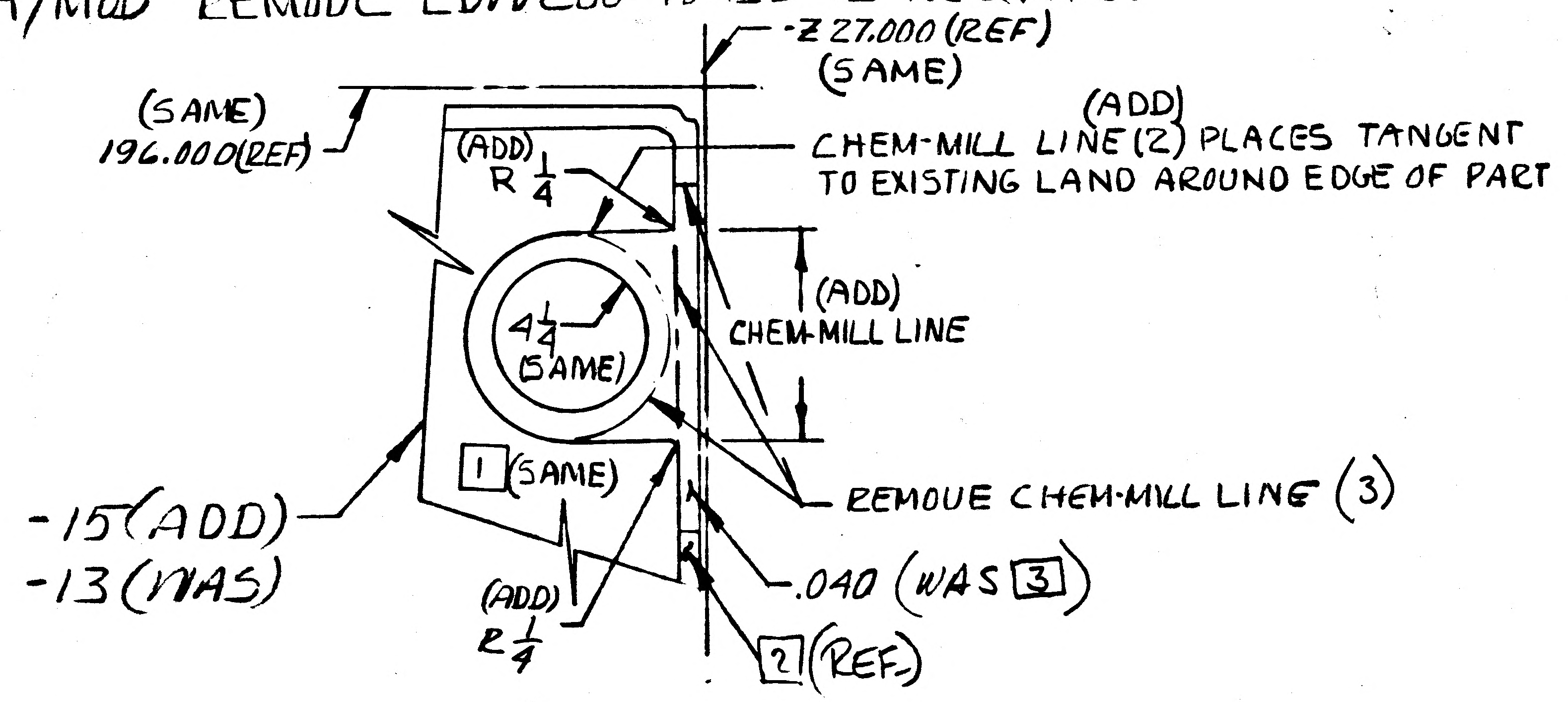
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18438
EO NO. A4
CONTROL INFO NO. LDW280A 8941

CREATE -15 IDENTICAL TO -13 EXCEPT AS SHOWN.
FOR -15 EFF LM-4(34) THRU LM-15(45) & LTA-3D(13) N/A LDW280-23538
(1) REQD EA/MOD REMOVE LDW280-18438-13 REQMTS.


-Z 27.000 (REF)
(SAME)
(SAME)
196.000 (REF)
(ADD)
R 1/4
(ADD)
CHEM-MILL LINE (2) PLACES TANGENT TO EXISTING LAND AROUND EDGE OF PART
4 1/2
(SAME)
(ADD)
CHEM-MILL LINE
1 (SAME)
REMOVE CHEM-MILL LINE (3)
-15 (ADD)
-13 (WAS)
.040 (WAS 3)
(ADD)
R 1/4
2 (REF.)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD1997 5

REASON FOR EO: CHEM-MILL LAND TO SALVAGE WIRE RUNS

DESCRIPTION OF EO: ADDED -15 REMOVED -13

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -13

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JaP			—	NM		9wRB
DATE	8/25/67			—	8/26/67		8/26/67

PRIORITY: C

DRAWING TITLE: WEB DESCENT STAGE BEAM PANEL ENG. COMPT L.H.

DRAWING NO. LDW280-18438

EO NO. A4

9/4
ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

C

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCDL997		5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE (*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	NM			
DATE	8/21/67			—	8/23/67		8/24/67	8-28-67
	V.D.I.							

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO. LEO 280 | EO NO. 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-65

DWG. NO. LEO280 | EO NO. 698
CONTROL INFO NO. LDW280A-8866

ON THE FOLLOWING DWG'S ADD * IDENTICAL TO ** EXCEPT AS NOTED. FOR * I&T(S) WAS NONE FOR **. NEXT ASSY, QTY & EFFECTIVITY REMAINS THE SAME FOR * AS IT WAS FOR **.

	DWG NO	** REMOVE	* ADD	CHG	DWG TITLE
✓	LDW280-18424	-11	-13	A3	WEB ~ D.S. ~ END BLKD ~ R.H. END BHD
✓	" -18425	-11	-13	A3	" ↓ ↓ ~ L.H. END BHD
✓	" -18426	-11	-13	A3	" ↓ ↓ ~ FWD END BHD
✓	" -18427	-11	-13	A3	" ↓ ↓ ~ AFT END BHD
✓	" -18429	-15	-17	A5	" D.S. ~ BEAM PANEL ~ FWD ENG. COMPT.
✓	" -18432	-13	-15	A4	" ↓ ↓ ~ AFT ENG COMPT.
✓	" -18435	-11	-13	A3	" ↓ ↓ ~ R.H ENG COMPT
✓	" -18438	-15	-17	A6	" ↓ ↓ ~ L.H. ENG COMPT.

ADD TO DWG ABOVE TITLE BLOCK
LPC-19-3 (VENDOR)
LPC-19-2 (GRUMMAN)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐ | LCD 1997 ok | 5

REASON FOR EO: RECORD CHANGE SERIALIZATION OF PARTS

DESCRIPTION OF EO: ADDED - *, REMOVED - **.

Ⓡ GAEC EO RELEASE: VK 8/30/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34) THRU	
		LM15 (45) &	
		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	JAP			Z	NM		
DATE	8/21/67				8/23/67	8/24/67	8/30/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C | DRAWING TITLE: SEE DRAWING | DRAWING NO.: LEO 280 | EO NO.: 698

ISSUED BY 8/25 PLANTE 1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

	DWG	TITLE	CHANGE
✓	LDW280-18424	SEE DWG	B1
✓	-18425		B1
✓	-18426		B1
✓	-18427		B1
✓	-18428		B1
✓	-18429		B1
✓	-18430		B1
✓	-18431		B1
✓	-18432		B1
✓	-18433		B1
✓	-18434		B1
✓	-18435		B1
✓	-18436		B1
✓	-18437		B1
✓	-18438		B1
	-18439		B1
	-18441		B1
	-18442		B1
	LDW280-18443		B1
	LDW280-18444	SEE DWG	B1

01 NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	LTA-3D(13)
		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

APPROVED BY								
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

ISSUED BY J. LANG/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

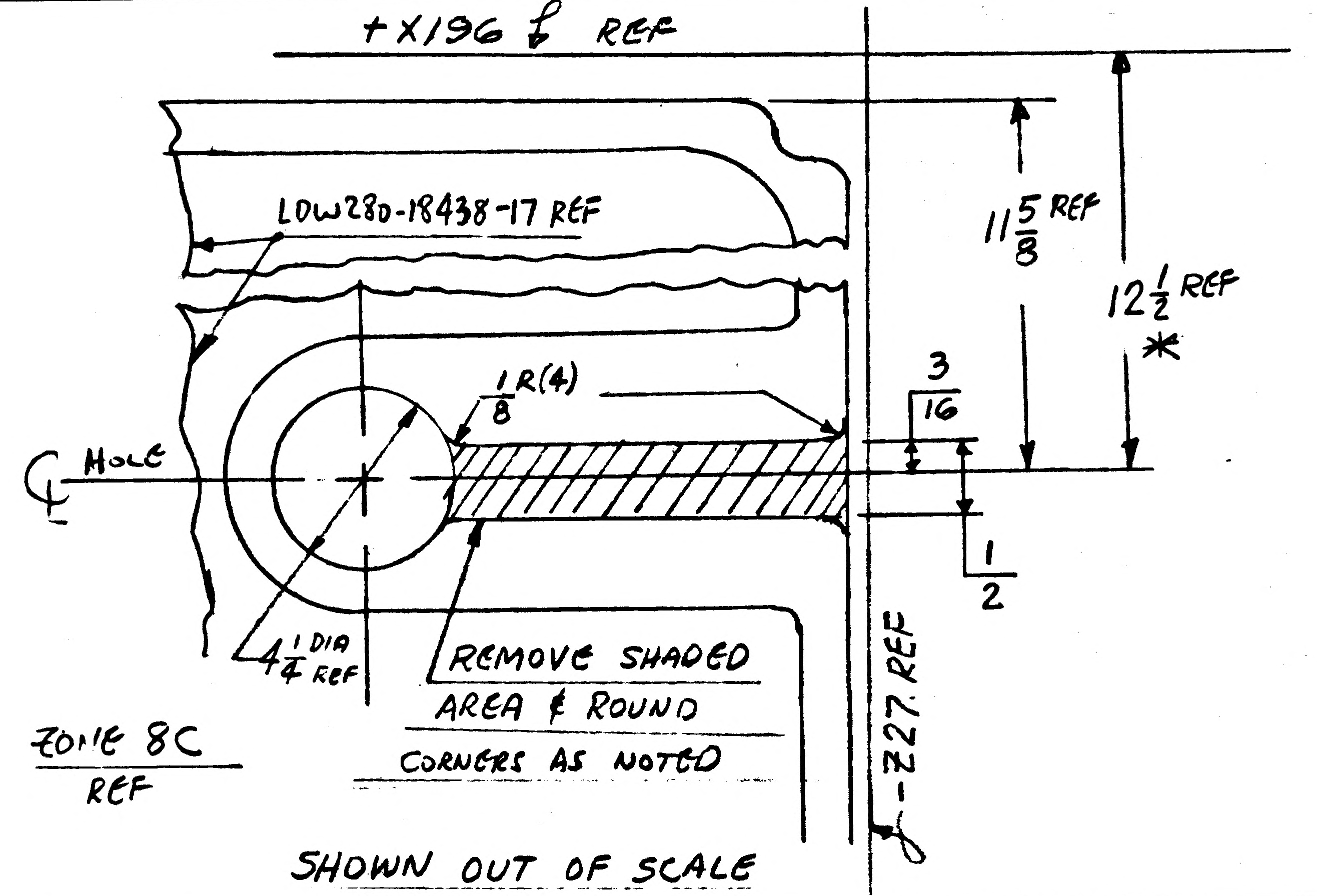
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18438		EO NO.	B2
CONTROL INFO NO. LDW280A 8704			

REWORK -17 BY ADDING 1/2" WIDE SLOT TO 4 1/4 DIA HOLE AS SHOWN


+X196 ℄ REF
LDW280-18438-17 REF
11 5/8 REF
12 1/2 REF *
1/8 R(4)
3/16
1/2
℄ HOLE
4 1/4 DIA REF
REMOVE SHADED AREA & ROUND CORNERS AS NOTED
ZONE 8C REF
℄ -Z27 REF
SHOWN OUT OF SCALE

* PARALLEL TO EDGE OF PART

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 1997

REASON FOR EO: TO SALVAGE ELECTRICAL WIRE RUNS

DESCRIPTION OF EO: ON -17, IN F/D, ADDED 1/2" SLOT

GAEC EO RELEASE: JK 9/11/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM		LM-4 (34) THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓ -17	

APPROVED BY					N.M.			
DATE	9/9/67			9/9/67	9/9/67		9/11/67	9-11-67
9/8/67	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: WEB D/S BEAM PANEL ENG COMPARTMENT L.H.

DRAWING NO.: LDW280-18438

EO NO.: B2

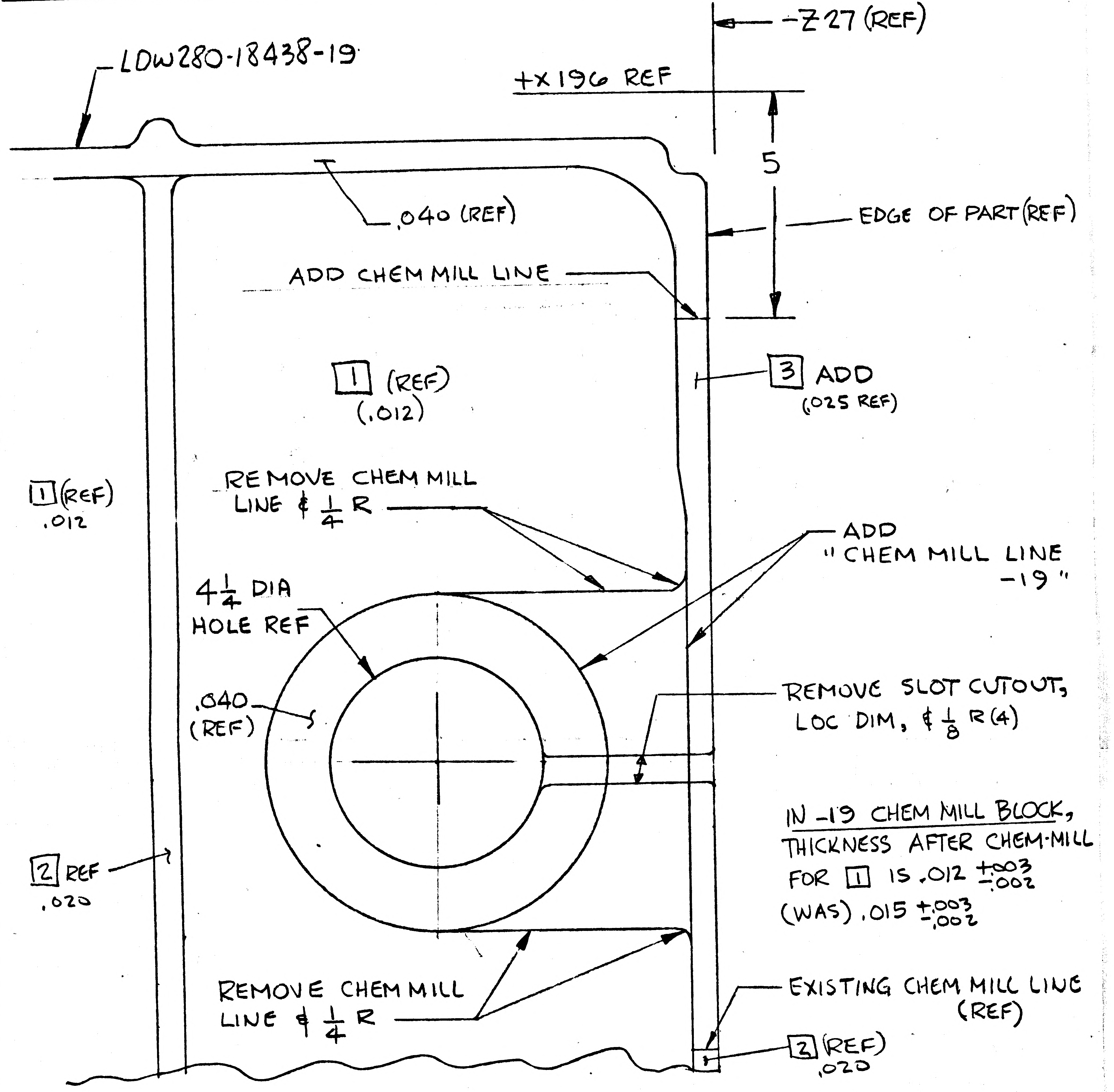
9/9 ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18438 | EO NO. B3
CONTROL INFO NO. LDW280A 9494

ENG 32.2 REV 3-65



LDW280-18438-19
-Z27 (REF)
+X196 REF
5
.040 (REF)
EDGE OF PART (REF)
ADD CHEM MILL LINE
1 (REF) (.012)
3 ADD (.025 REF)
1 (REF) .012
REMOVE CHEM MILL LINE ¢ 1/4 R
ADD "CHEM MILL LINE -19"
4 1/4 DIA HOLE REF
.040 (REF)
REMOVE SLOT CUTOUT, LOC DIM, ¢ 1/8 R (4)
2 REF .020
REMOVE CHEM MILL LINE ¢ 1/4 R
EXISTING CHEM MILL LINE (REF)
2 (REF) .020

IN -19 CHEM MILL BLOCK, THICKNESS AFTER CHEM-MILL FOR 1 IS .012 $^{+.003}_{-.002}$ (WAS) .015 $^{+.003}_{-.002}$

ADD -19 IDENT TO -17 EXCEPT AS NOTED

-19 EFF LM-6(36) THRU LM-15(45), N/A LDW280-23538, 1 REQD/MOD, -19 PROCESS & FINISH TO BE "SEE NOTE *"

REMOVE LM-6(36) THRU LM-15(45) REQMTS FROM -17

ADD NOTE * "FABRICATE & FINISH *76 PER LPC280-43"

*USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ✓ LCD 2183 / LCD 1997 / LCD 2220 3

REASON FOR EO: REVISE WEB MIN GAGE, FINISH, & REMOVE ELEC HARNESS SLOT

DESCRIPTION OF EO: ADDED -19 & NOTE * REMOVED LM-6(36) THRU LM-15(45), LTA-3(13) REQMTS FROM -17

GAEC EO RELEASE: C VK 10/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 (13)	
LM		LM-6(36) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓ -17

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE B	10/5/67 VD1			10/13/67	10/13/67		MRB 10/13	10-14-67

PRIORITY: C
DRAWING TITLE: WEB D/S BEAM PANEL ENG COMPT - LH
DRAWING NO.: LDW280-18438
EO NO.: B3

ISSUED BY 10/13 J. LANG / J. STRAKOSCH X1153 10/5/67 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

my

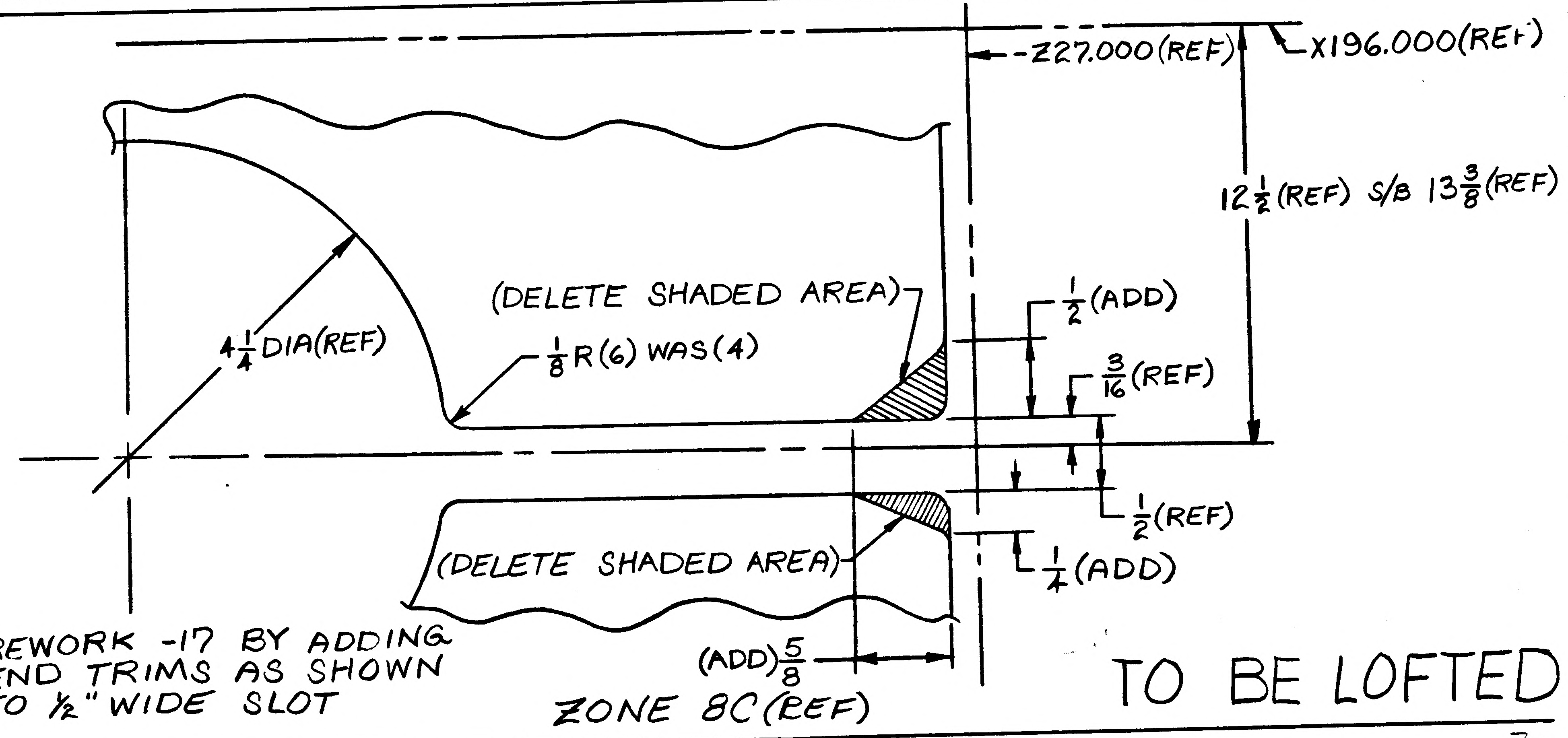
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

*

DWG. NO.	LDW280-18438	EO NO.	B4
CONTROL INFO NO.	LM-2-4038		



-Z27.000(REF)
X196.000(REF)
$12\frac{1}{2}$(REF) S/B $13\frac{3}{8}$(REF)
(DELETE SHADED AREA)
$4\frac{1}{4}$DIA(REF)
$\frac{1}{8}$R(6) WAS(4)
$\frac{1}{2}$(ADD)
$\frac{3}{16}$(REF)
$\frac{1}{2}$(REF)
(DELETE SHADED AREA)
$\frac{1}{4}$(ADD)
(ADD)$\frac{5}{8}$
ZONE 8C(REF)

REWORK -17 BY ADDING END TRIMS AS SHOWN TO ½" WIDE SLOT

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD1997

REASON FOR EO: TO SALVAGE ELECTRICAL WIRE RUNS. ELIMINATE INTERFERENCE WITH EXISTING FASTENERS

DESCRIPTION OF EO: ON-17 & -19 IN FLD/DWG, REVISED ½" SLOT BY ADDING 5/8 × ½ & 5/8 × ¼ END TRIMS.

GAEC EO RELEASE: JK 02825

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	
		LM-4(34) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ✓ REWORK ☐ SCRAP

APPROVED BY								
				—		Ctf	MRB	
DATE	10/2/67			—	10/18/67	10/17/67	10/2/67	10/19/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE-BEAM PANEL ENGINE COMPARTMENT-L.H. SIDE	LDW280-18438	B4

ISSUED BY LIAISON J. MALONEY 10/17/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18438
EO NO. B5
CONTROL INFO NO. LDW 280A 9660

THIS IS A REVISION OF EO B3

IN FIELD OF EO ONLY:

① -19 EFF LTA-3(13), LM-6(36) THRU LM-15(45)

(WAS)

-19 EFF LM-6(36) THRU LM-15(45)

② REMOVE LTA-3(13), LM6(36 THRU LM-15(45) REQMTS FROM -17

(WAS)

REMOVE LM-6(36) THRU LM-15(45) REQMTS FROM -17.

(REF.) -19 N/A LDW280-23538 1 REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

LCD 2220

REASON FOR EO: REVISED WEB GAGE

DESCRIPTION OF EO:
REF EO B3
ADDED LTA-3(13) REQMTS TO -19
REMOVED LTA-3(13) REQMTS FROM -17

Ⓡ GAEC EO RELEASE: C (3) JK 11/2/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOTED ABOVE		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	B	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					WB W/A			
DATE	10/27/67			10-26-67	10/30/67		10/30/67	11-1-67
	VD1							

PRIORITY: C
DRAWING TITLE: WEB P/S BEAM PANEL ENG COMPT -LH
DRAWING NO. LDW280-18438
EO NO. B5

11/2
ISSUED BY R. GOERTER / P. THORJUSEN JL
SECTION VD1
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18430	✓	C4	SEE DWG
-18431	✓	C2	↑
-18432	✓	C1	
-18433	✓	C2	
-18434	✓	C1	
-18435	✓	B4	
-18436	✓	C2	
-18437	✓	B6	
-18438	✓	C1	↓
LDW280 -18439		C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: ① JK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GSIP~~
APPROVED BY				08#	W			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1376

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280
EO NO. 1651
CONTROL INFO NO. LDW 280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
✓ 438		C2
439		C3
457		A3
458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9; 8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY: VDI — DATE 7-29-69; SUPPORT; RELIAB. GROUP; GROUP LEADER — 7/31/69; STRESS GROUP — N 8-2-69; LIAISON ENGRG; PROJ ENGRG — 8/29/69

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LEO 280

EO NO.: 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18439 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LM-5 (35)	1
LM	LDW280-23539	LM-4 (34)	1
PART NO. LDW280-18439-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LTA-3 (13)	1
LM	LDW280-23539	LM-15(45)	1
LM	↑	LM-14(44)	1
LM	│	LM-13(43)	1
LM	│	LM-12(42)	1
LM	│	LM-11(41)	1
LM	│	LM-10(40)	1
LM	│	LM-9(39)	1
LM	│	LM-8(38)	1
LM	↓	LM-7(37)	1
LM	LDW280-23539	LM-6(36)	1
PART NO. LDW280-18439-17		GAEC SCH NO. 51-4	

WORK PKG FUNCTION NO. 110 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00		4.00	
REV	B	B		B		B		B	
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO B	
LAST DASH NO. USED	-17	PRIM NO. 207	JK(001) mp-168-10/31/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.20 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1997	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	L.DIXON 9-1-67	
LAYOUT BY	J.ANDERSEN	
CHECKED BY	J Kartzman 9-19-67	
GR ~~LEADER~~		
VEH DES INT	J Stratos 7/23/67	
STRUCTURES	NM [illegible] 7/25/67	PROJ ENGR [illegible] 7/23/67
STRUCTURES	J [illegible] 9/8	REL GROUP [illegible] 7/30/67
WEIGHTS		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE~BEAM PANEL AFT L.H.

SIZE	CODE IDENT NO.		
B	26512	LDW280-18439	B
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

10-30-69

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10, 2.00 3.00 & 4.00				✓		EOA1 LCD 1997	EOA1 INITIAL DWG RELEASE, PARTS MADE PER E.O.	LM-4 THRU LM-15 & LTA-3D	NOT	REQD	L. Dixon 9-1-67		
	2	2.00, 3.00, 4.00				✓		EOA2 LCD 1997	ADDED -13, REMOVED -11	LM-4 THRU LM-15 & LTA-3D		-11	L.DIXON 9-1-67		
	3	3.00				✓		LEO280-696 LCD 1997	ADDED NOTE ✱, REMOVED NOTE # X, Y & Z		NOT	REQD			
	4	3.00							REF EO A1, A2 & A3, ALL NOTES NOT APPLICABLE, ADDED NOTES # 1, 2, 3 & 4						
B	1	3.00				✓		LEO280-706 LCD 1997	ON -13 REVISED CHEM-MILL TOLERANCES $.015^{+.003}_{-.002}$ WAS .015 ± .002.	LM-4 (34) THRU LM-15 (45) LTA-3 (13)	NOT	REQD	T. MACAULAY 10-25-67		
	2	4.00				✓		EO B2 LCD 1997	ADDED SLOT CUTOUT FOR -13		✓				
	3	1.00, 2.00, 3.00 & 4.00		PRIOR EVENT CODE "B"			✓	EO B3 LCD 2183	ADDED -15, REMOVED LM-6 (36) THRU LM-15 (45) REQ FROM -13.	NOTED		-13			
	4	3.00				✓		LCD 1997	REF EO B1, $.015^{+.003}_{-.002}$ WAS .015 ± .002 SHOULD BE $.015^{+.003}_{-.002}$ WAS .015 ± .002 & $.018^{+.003}_{-.002}$ WAS .018 ± .002.	LM-4 (34) THRU LM-15 (45) LTA-3 (13)	NOT	REQD			
	5	1.00, 2.00 3.00 & 4.00					✓	LCD 2220	ADDED -17, REMOVED -15, REMOVED LTA-3 (13) REQ FROM -13	NOTED		-13 -15			

CHG APPROVED LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A	—	9/13/67	7/25/67		
B	Rft 10-26-67	9/26/67	7/26/67	9/27	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18439	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18439-17	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.071X56 1/2X69 1/8	SEE NOTE 3		6B
								LDW280-18439-13	S	WEB	AL. ALLOY SH	QQ-A-250/12	7075-T6	.071×56½×69⅛	SEE NOTE 3		6B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC-19-2(GRUMMAN) LPC-19-3 (VENDOR)

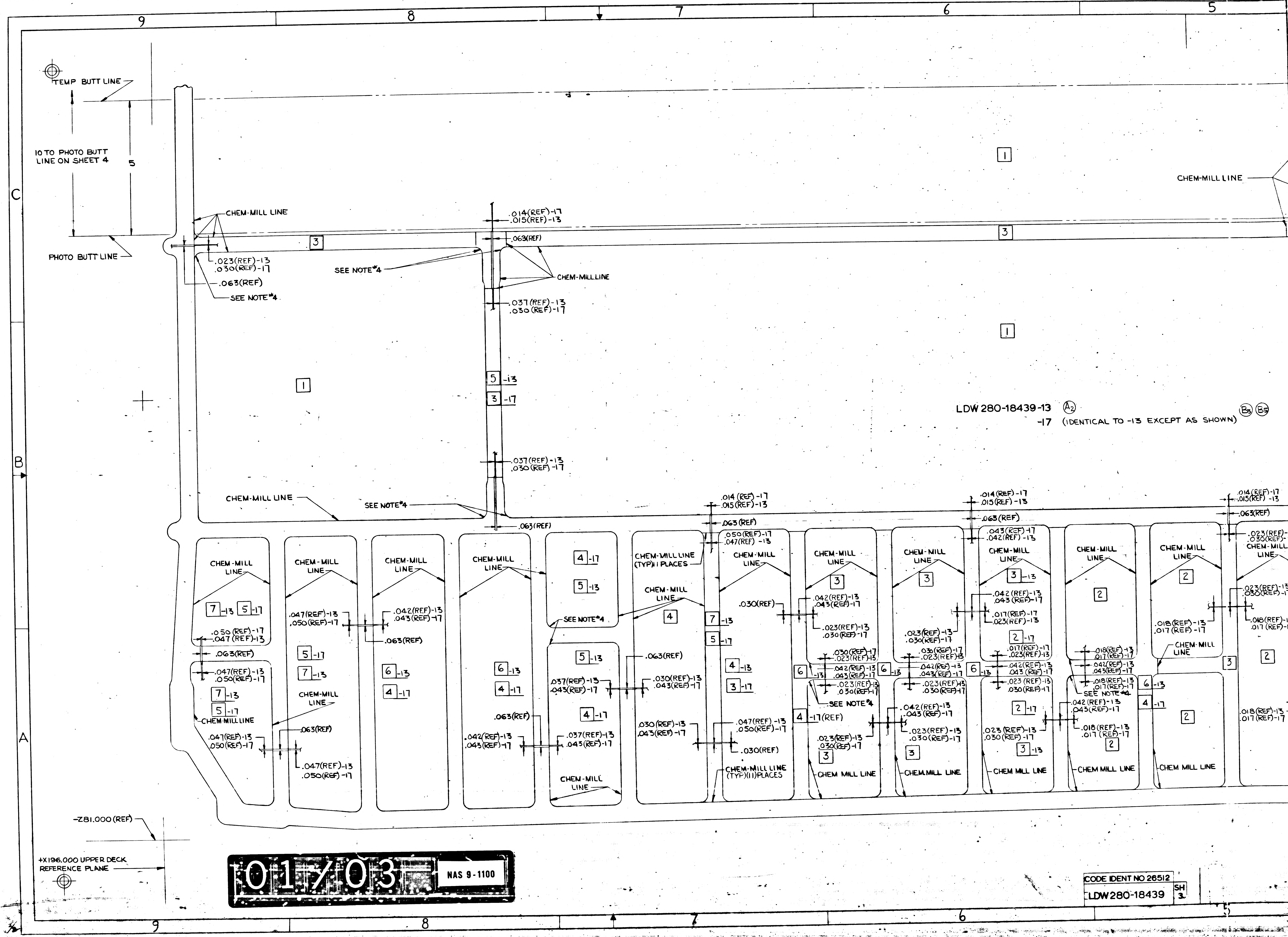
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18439
B Ⓑ
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

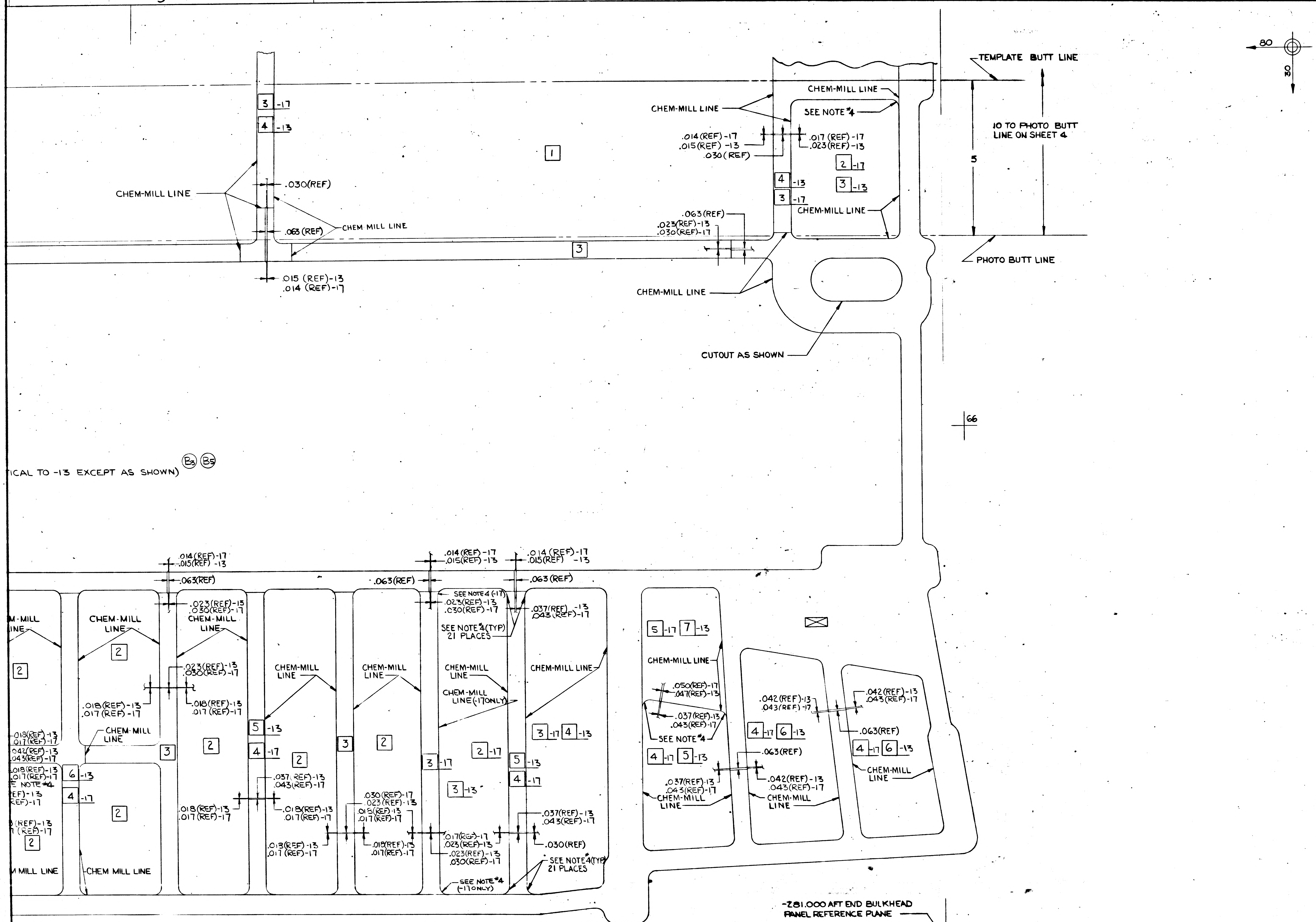
01

NAS 9-1100


TEMP BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
CHEM-MILL LINE
.023(REF)-13
.030(REF)-17
.063(REF)
SEE NOTE*4
.014(REF)-17
.015(REF)-13
.037(REF)-13
.030(REF)-17
CHEM-MILL LINE
CHEM-MILL LINE (TYP) 11 PLACES
CHEM-MILL LINE (TYP)(11)PLACES
.050(REF)-17
.047(REF)-13
.047(REF)-13
.050(REF)-17
.042(REF)-13
.043(REF)-17
.030(REF)
.023(REF)-13
.030(REF)-17
.017(REF)-17
.023(REF)-13
.018(REF)-13
.017(REF)-17
.037(REF)-13
.043(REF)-17
1
2
3
4 -17
5 -13
6 -13
7 -13
LDW 280-18439-13 A2
-17 (IDENTICAL TO -13 EXCEPT AS SHOWN) B3 B5
-Z81.000 (REF)
+X196.000 UPPER DECK REFERENCE PLANE
A
B
C
9
8
7
6
5

01/03 NAS 9-1100

CODE IDENT NO 26512
LDW280-18439
SH 3


5
4
3
2
1
CHEM-MILL LINE
3 -17
4 -13
1
.030(REF)
.063 (REF)
CHEM MILL LINE
3
.015 (REF)-13
.014 (REF)-17
CHEM-MILL LINE
.014(REF)-17
.015(REF)-13
.030(REF)
SEE NOTE 4
.017 (REF)-17
.023 (REF)-13
2 -17
3 -13
4 -13
3 -17
CHEM-MILL LINE
.063(REF)
.023(REF)-13
.030(REF)-17
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
CUTOUT AS SHOWN
66
80
30
ICAL TO -13 EXCEPT AS SHOWN)
B3 B3
.014(REF)-17
.015(REF)-13
.063(REF)
.023(REF)-13
.030(REF)-17
CHEM-MILL LINE
2
.018(REF)-13
.017(REF)-17
CHEM-MILL LINE
3
6 -13
4 -17
.042(REF)-13
.043(REF)-17
SEE NOTE 4
CHEM MILL LINE
5 -13
4 -17
.037(REF)-13
.043(REF)-17
.018(REF)-13
.017(REF)-17
.014(REF)-17
.015(REF)-13
SEE NOTE 4 (-17)
SEE NOTE 4 (TYP) 21 PLACES
CHEM-MILL LINE (-17 ONLY)
3 -17
2 -17
3 -13
.030(REF)-17
.023(REF)-13
.017(REF)-17
.023(REF)-13
.030(REF)-17
SEE NOTE 4 (-17 ONLY)
.014 (REF)-17
.015(REF) -13
.063 (REF)
.037(REF)-13
.043(REF)-17
3 -17 4 -13
5 -13
4 -17
.030(REF)
SEE NOTE 4 (TYP) 21 PLACES
5 -17 7 -13
.050(REF)-17
.047(REF)-13
.037(REF)-13
.043(REF)-17
4 -17 5 -13
.042 (REF)-13
.043(REF)-17
4 -17 6 -13
.063(REF)
.042(REF)-13
.043(REF)-17
4 -17 6 -13
-Z81.000 AFT END BULKHEAD PANEL REFERENCE PLANE
+X131.140 LOWER DECK REFERENCE PLANE

02/03

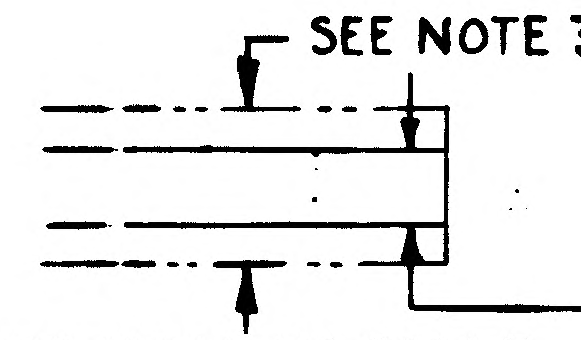
NAS 9-1100

DE IDENT NO 26512

DW280-18439 SH 3

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18439-13 IS SIMILAR TO LDW280-17139-2
3. FABRICATE LDW280-18439-13&-17 LPC 280-43.
4. TOLERANCE ±.125 AT TANGENC POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.



FOR ENGRG REF ONLY-NO SCALE

LDW280-18

CHEM-MILL LINE ±1/16 WHERE DEPT IS .040 OR LESS AS NOTED) ±1/32 WHERE DEP IS GREATER THAN	
SYMBOL	THI CH
1	.01
2	.01
3	.02
4	.03
5	.03
6	.04
7	.04

LDW280-1

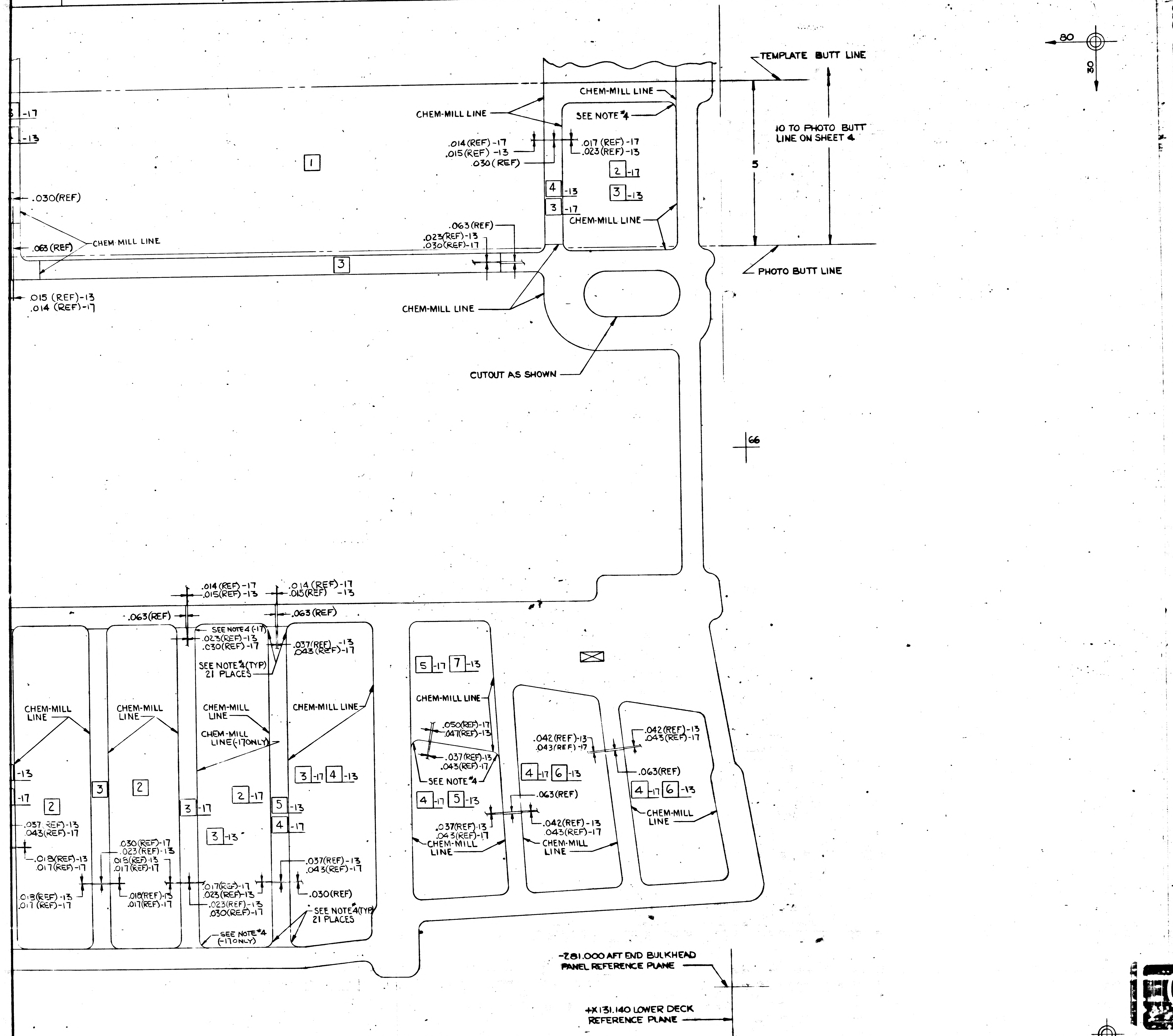
CHEM-MILL LINE T ±1/32 WHERE DEP IS .040 OR LESS AS NOTED) ±1/32 WHERE DE IS GREATER TH	
SYMBOL	THIC CH
1	.01
2	.01
3	.03
4	.04
5	.05

	GRUMMAN A
	SIZE J
LM	CODE IDE 265
MODEL OR END ITEM	SCALE FULL

FOR PHO

GEOM & OVERLAY

TRAM


TEMPLATE BUTT LINE
CHEM-MILL LINE
SEE NOTE #4
.014(REF)-17
.015(REF)-13
.030(REF)
.017(REF)-17
.023(REF)-13
1
2 -17
3 -13
4 -13
3 -17
-17
-13
.030(REF)
.063(REF)
CHEM MILL LINE
.063(REF)
.023(REF)-13
.030(REF)-17
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
.015 (REF)-13
.014 (REF)-17
CUTOUT AS SHOWN
66
80
30
.014(REF)-17
.015(REF)-13
.014(REF)-17
.015(REF) -13
.063(REF)
SEE NOTE 4 (-17)
.023(REF)-13
.030(REF)-17
.037(REF) -13
.043(REF)-17
SEE NOTE #4 (TYP) 21 PLACES
CHEM-MILL LINE
CHEM-MILL LINE (-17 ONLY)
5 -17
7 -13
.050(REF)-17
.047(REF)-13
.037(REF)-13
.043(REF)-17
SEE NOTE #4
.042(REF)-13
.043(REF)-17
.063(REF)
4 -17
6 -13
5 -13
4 -17
2 -17
3 -13
.037(REF)-13
.043(REF)-17
.018(REF)-13
.017(REF)-17
.030(REF)-17
.023(REF)-13
.015(REF)-13
.017(REF)-17
.018(REF)-13
.017(REF)-17
.017(REF)-17
.023(REF)-13
.023(REF)-13
.030(REF)-17
.030(REF)
SEE NOTE 4 (TYP) 21 PLACES
SEE NOTE #4 (-17 ONLY)
.042(REF)-13
.043(REF)-17
-Z81.000 AFT END BULKHEAD PANEL REFERENCE PLANE
+X131.140 LOWER DECK REFERENCE PLANE

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18439-13 IS SIMILAR TO LDW280-17139-21.
3. FABRICATE LDW280-18439-13 & -17 PER LPC 280-43.
4. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.

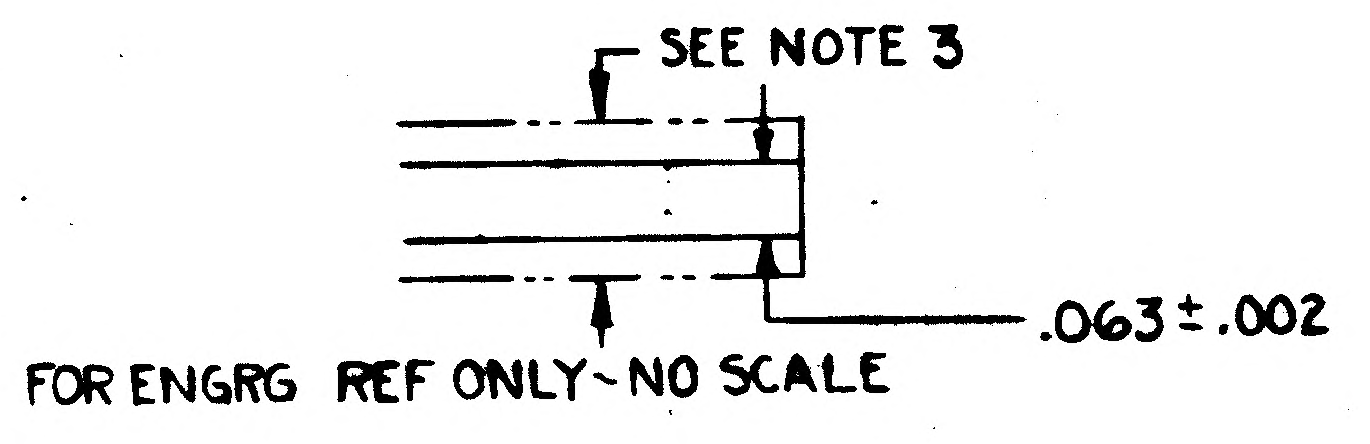
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .000 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34x 94.

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x107) = 27.0 SQ. FT.
¼ SIZE SHEET AREA (¼ OF FULL) = 7.0 SQ. FT.

PRINT TRIM LINE


SEE NOTE 3
.063 ± .002

FOR ENGRG REF ONLY~NO SCALE

LDW 280-18439-13

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015 {}^{+.003}_{-.002}$	.048
2	$.018 {}^{+.003}_{-.002}$	.045
3	$.023 {}^{+.003}_{-.002}$	.040
4	.030 ± .003	.033
5	$.037 {}^{+.004}_{-.003}$	.026
6	.042 ± .004	.021
7	$.047 {}^{+.005}_{-.004}$	.016

LDW 280-18439-17

CHEM-MILL LINE TOLERANCES
±1/32 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±132 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.014 {}^{+.003}_{-.002}$	.049(REF)
2	$.017 {}^{+.003}_{-.002}$	.046(REF)
3	$.030 {}^{+.003}_{-.002}$	.033 (REF)
4	.043 ± .003	.020(REF)
5	$.050 {}^{+.004}_{-.003}$	.013(REF)

03703

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18439	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

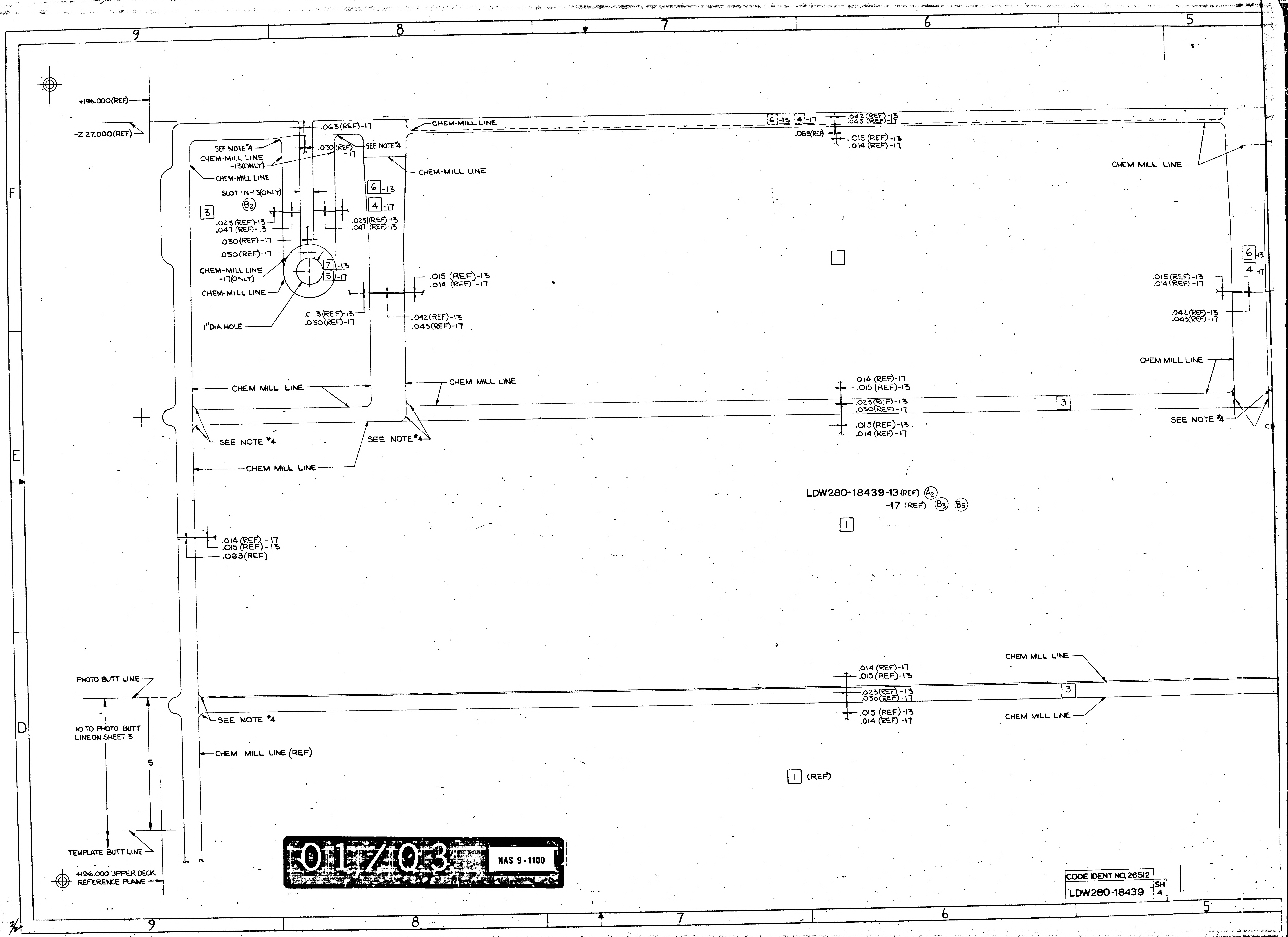
B

FOR PHOTO REPRODUCTION

K2

LDW280-18439 B

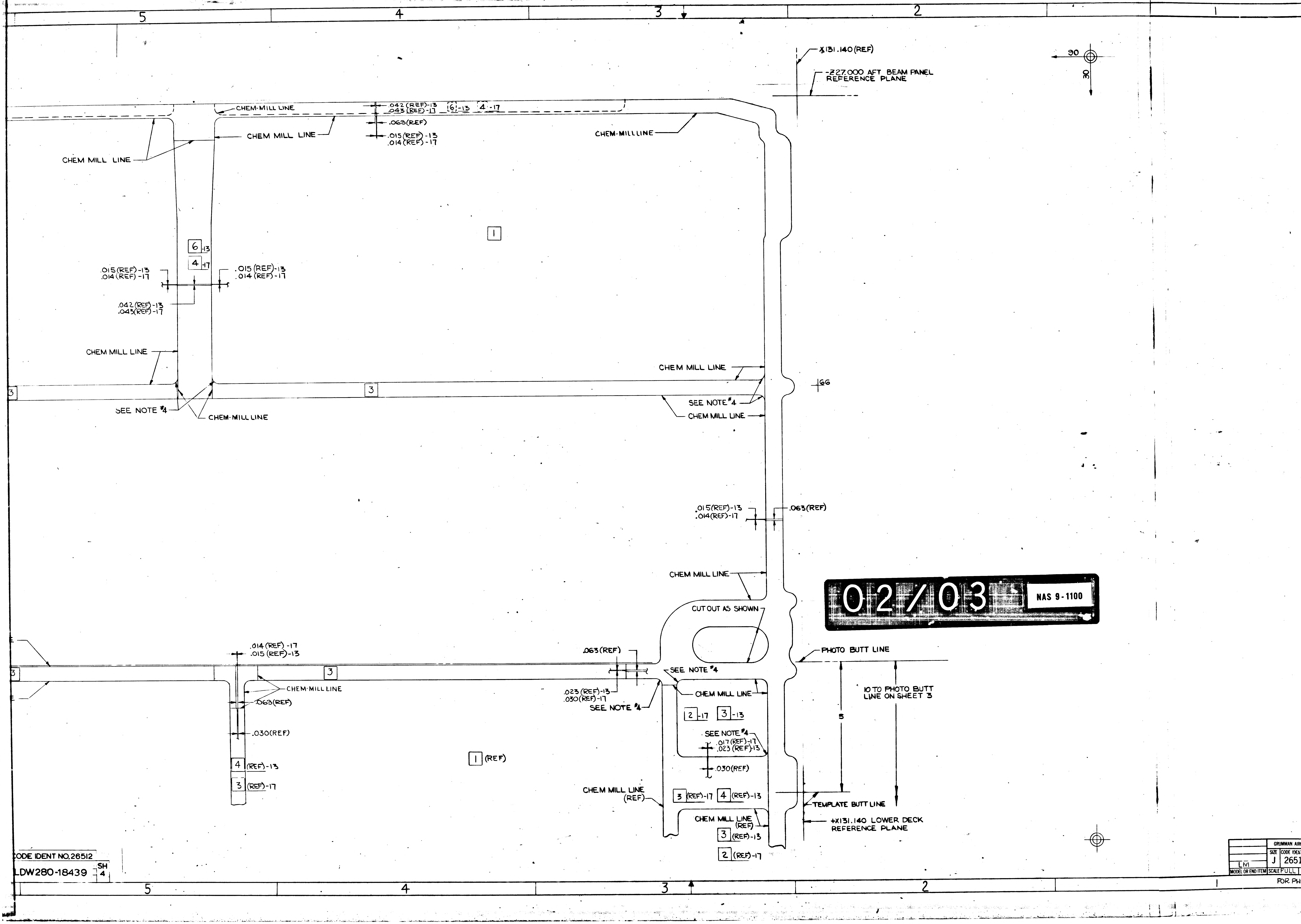
LDW280-18439 B


9
8
7
6
5
F
E
D
+196.000(REF)
-Z 27.000(REF)
.063(REF)-17
SEE NOTE 4
CHEM-MILL LINE
-13(ONLY)
CHEM-MILL LINE
.030(REF)-17
SEE NOTE 4
CHEM-MILL LINE
CHEM-MILL LINE
6 -13
4 -17
SLOT IN-13(ONLY)
B2
3
.023(REF)-13
.047(REF)-13
.023(REF)-13
.047(REF)-13
.030(REF)-17
.050(REF)-17
CHEM-MILL LINE
-17(ONLY)
7 -13
5 -17
CHEM-MILL LINE
1"DIA HOLE
.C 3(REF)-13
.030(REF)-17
.015 (REF)-13
.014 (REF)-17
.042(REF)-13
.043(REF)-17
6 -13
4 -17
.042(REF)-13
.043(REF)-17
.063(REF)
.015(REF)-13
.014(REF)-17
CHEM MILL LINE
1
6 -13
4 -17
.015(REF)-13
.014(REF)-17
.042(REF)-13
.043(REF)-17
CHEM MILL LINE
CHEM MILL LINE
CHEM MILL LINE
.014(REF)-17
.015(REF)-13
.023(REF)-13
.030(REF)-17
.015(REF)-13
.014(REF)-17
3
SEE NOTE 4
SEE NOTE 4
SEE NOTE 4
CHEM MILL LINE
LDW280-18439-13 (REF) A2
-17 (REF) B3 B5
1
.014 (REF) -17
.015 (REF) -13
.063(REF)
PHOTO BUTT LINE
CHEM MILL LINE
.014(REF)-17
.015(REF)-13
.023(REF)-13
.030(REF)-17
3
.015 (REF)-13
.014 (REF)-17
CHEM MILL LINE
SEE NOTE 4
10 TO PHOTO BUTT LINE ON SHEET 3
5
CHEM MILL LINE (REF)
1 (REF)
TEMPLATE BUTT LINE
+196.000 UPPER DECK REFERENCE PLANE
9
8
7
6
5

01/03 NAS 9-1100

CODE IDENT NO. 26512

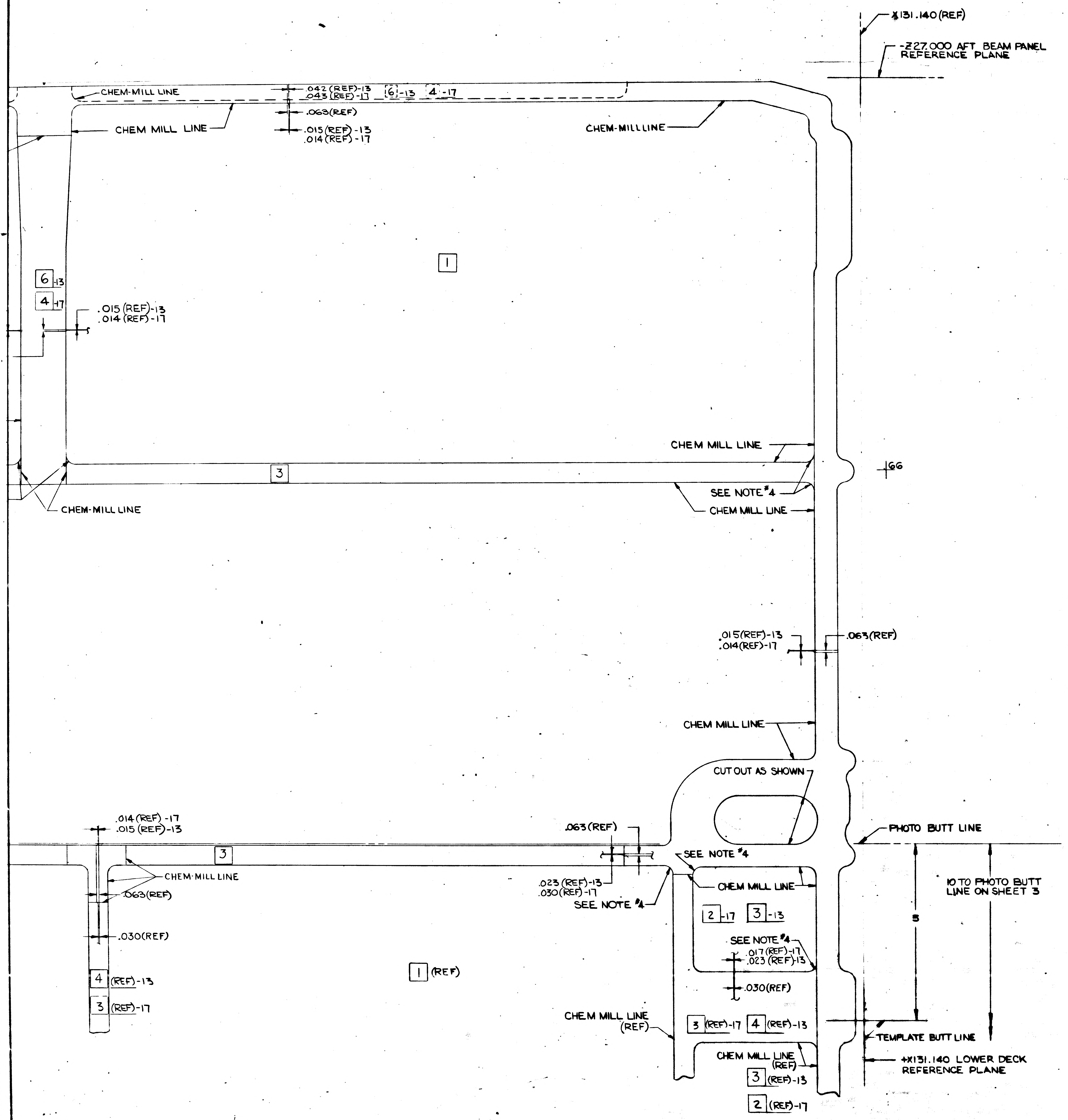
LDW280-18439 SH 4


5
4
3
2
1
X131.140(REF)
-Z27.000 AFT BEAM PANEL REFERENCE PLANE
90
30
CHEM-MILL LINE
.042 (REF)-13
.043 (REF)-17
6 -13
4 -17
.063(REF)
.015(REF)-13
.014(REF)-17
CHEM MILL LINE
CHEM-MILL LINE
CHEM MILL LINE
1
6 -13
4 -17
.015(REF)-13
.014(REF)-17
.015 (REF)-13
.014 (REF)-17
.042(REF)-13
.043(REF)-17
CHEM MILL LINE
CHEM MILL LINE
3
3
SEE NOTE #4
CHEM-MILL LINE
SEE NOTE #4
CHEM MILL LINE
66
.015(REF)-13
.014(REF)-17
.063(REF)
CHEM MILL LINE
CUT OUT AS SHOWN
PHOTO BUTT LINE
.014 (REF) -17
.015 (REF)-13
.063(REF)
SEE NOTE #4
3
3
CHEM-MILL LINE
.063(REF)
.030(REF)
.023 (REF)-13
.030(REF)-17
SEE NOTE #4
CHEM MILL LINE
2 -17
3 -13
SEE NOTE #4
.017 (REF)-17
.023 (REF)-13
.030(REF)
10 TO PHOTO BUTT LINE ON SHEET 3
5
4 (REF)-13
3 (REF)-17
1 (REF)
CHEM MILL LINE (REF)
3 (REF)-17
4 (REF)-13
TEMPLATE BUTT LINE
CHEM MILL LINE (REF)
3 (REF)-13
2 (REF)-17
+X131.140 LOWER DECK REFERENCE PLANE
GRUMMAN AIR
SIZE
J
CODE IDEN
2651
LM
MODEL OR END ITEM
SCALE FULL
FOR PH
5
4
3
2
1

02/03 NAS 9-1100

CODE IDENT NO.26512

LDW280-18439 SH 4


X131.140 (REF)
Z27.000 AFT BEAM PANEL REFERENCE PLANE
CHEM-MILL LINE
.042 (REF)-13
.043 (REF)-17
6 -13
4 -17
.063 (REF)
CHEM MILL LINE
.015 (REF)-13
.014 (REF)-17
CHEM-MILL LINE
1
6 -13
4 -17
.015 (REF)-13
.014 (REF)-17
CHEM MILL LINE
3
SEE NOTE #4
CHEM MILL LINE
CHEM-MILL LINE
66
.015(REF)-13
.014(REF)-17
.063(REF)
CHEM MILL LINE
CUT OUT AS SHOWN
PHOTO BUTT LINE
.014 (REF) -17
.015 (REF) -13
.063 (REF)
3
SEE NOTE #4
CHEM-MILL LINE
.063(REF)
.023 (REF)-13
.030 (REF)-17
SEE NOTE #4
CHEM MILL LINE
2 -17
3 -13
10 TO PHOTO BUTT LINE ON SHEET 3
5
.030(REF)
SEE NOTE #4
.017 (REF)-17
.023 (REF)-13
1 (REF)
.030(REF)
4 (REF)-13
3 (REF)-17
CHEM MILL LINE (REF)
3 (REF)-17
4 (REF)-13
TEMPLATE BUTT LINE
CHEM MILL LINE (REF)
3 (REF)-13
2 (REF)-17
+X131.140 LOWER DECK REFERENCE PLANE
90
30

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .000 .063R TO .250R ± .015 OVER .250R ± .030
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
200 FOR ALL DRILLED HOLES
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED
TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x107) = 27 SQ. FT.

½ SIZE SHEET AREA (¼ OF FULL) = 7 SQ. FT.

PRINT TRIM LINE

LDW280-18439 B

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18439	B
	SCALE FULL			SHEET 4.00

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A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18439 EO NO. A1
CONTROL INFO NO. LDW280A8797

CREATE -11 WEB SAME AS LDW280-17139-21 EXCEPT AS SHN.
EFF FOR -11 LEM-4(34) THRU LEM-15(45) & LTA-3D(13)
N/A LDW280-23539 LEM-4(15) THRU LEM-15(45) & LTD-3D(13)
(1) REQD PER MOD. — ALL NOTES APPLY EXCEPT NOTE #6 I&T(S)

(SAME)	(ADD) LDW280-18439-11		
LDW280-11139-21 SYMBOL	SYMBOL	THK. AFTER CHEM-MILL	DEPTH OF CUT
1	1	.015 ±.002	.048 (REF)
2	2	.018 ±.002	.045 (REF)
3 4	3	$.023^{+.003}_{-.002}$	.040 (REF)
5	4	.030 ±.003	.033 (REF)
6	5	$.037^{+.004}_{-.003}$	.026 (REF)
7	6	.042 ±.004	.021 (REF)
8	7	$.047^{+.005}_{-.004}$	.016 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18439-11 IS SIMILIAR TO LDW280-17139-21

-11 IDENTICAL TO LDW280-17139-21 REV C INCLUDING EO $D_1(\frac{LEO}{545})$ $D_2(\frac{LEO}{599})$

*NEW DWG – NO PARTS MADE

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1997

REASON FOR EO: TO IMPROVE QUALITY OF CHEM-MILL WEB

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LMA(34) THRU LMA5(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
*		NOT REQD		8/18/67 VDI			8/18/67	NM 8-19-67		8/21/67	8/22/67

PRIORITY: C
DRAWING TITLE: WEB-DESCENT STAGE BEAM PANEL AFT L.H.
DRAWING NO. LDW280-18439
EO NO. A1

8/25
ISSUED BY J. ANDERSEN/J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

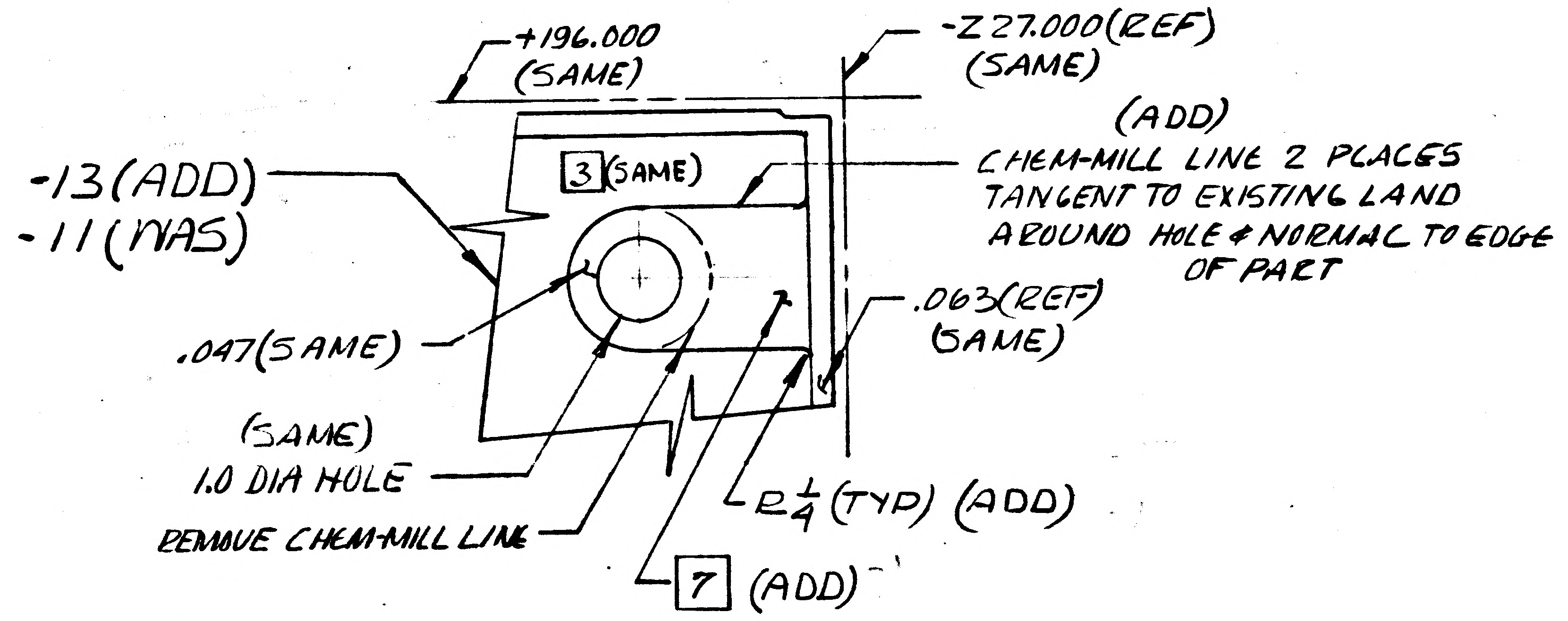
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18439
EO NO. A2
CONTROL INFO NO. LDW280A 8942

CREATE -13 WEB IDENTICAL TO -11 WEB EXCEPT AS SHN.
-13 EFF LM-4(34) THRU LM-15(45) & LTA-3D(13) N/A LDW280-23539
(1) REQD EA/MOD — REMOVE LDW280-18439-11 WEB REQMTS.


+196.000
(SAME)
-227.000(REF)
(SAME)
-13 (ADD)
-11 (NAS)
3 (SAME)
(ADD)
CHEM-MILL LINE 2 PLACES TANGENT TO EXISTING LAND AROUND HOLE & NORMAL TO EDGE OF PART
.047(SAME)
.063(REF)
(SAME)
(SAME)
1.0 DIA HOLE
REMOVE CHEM-MILL LINE
R 1/4 (TYP) (ADD)
7 (ADD)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 1997 5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADD CHEM-MILL LAND TO SALVAGE WIRE RUNS	ADDED -13 REMOVED -11	JK 8/28/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)
		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-11
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—	NM		WRB	
DATE	8/25/67			—	8/26/67		8/26/67	8-26-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY C
DRAWING TITLE WEB-DESCENT STAGE BEAM PANEL AFT L.H.
DRAWING NO. LDW280-18439
EO NO. A2

9/4 ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

01 NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 696
CONTROL INFO NO. LDW280A 8879		

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE ✱ (✱. USE NEXT AVAILABLE NOTE #)

NOTE✱ - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE # X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD1997

5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(✱) REMOVED NOTE # (X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT REQD		DATE	8/21/67			—	NM 8/23/67		8/24/67	8-28-67
REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ✱

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS✱ OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425		B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280 -18443		B1
LDW280 -18444	SEE DWG	B1

01
NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON ✱ REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD
APPROVED BY / DATE: 9/7/67 VDI 9/7/67
SUPPORT
RELIAB. GROUP
GROUP LEADER 9/7/67
STRESS GROUP 9-7-67
LIAISON ENGRG
PROJ ENGRG 9/7/67
~~CONF~~ AC 9-7-67

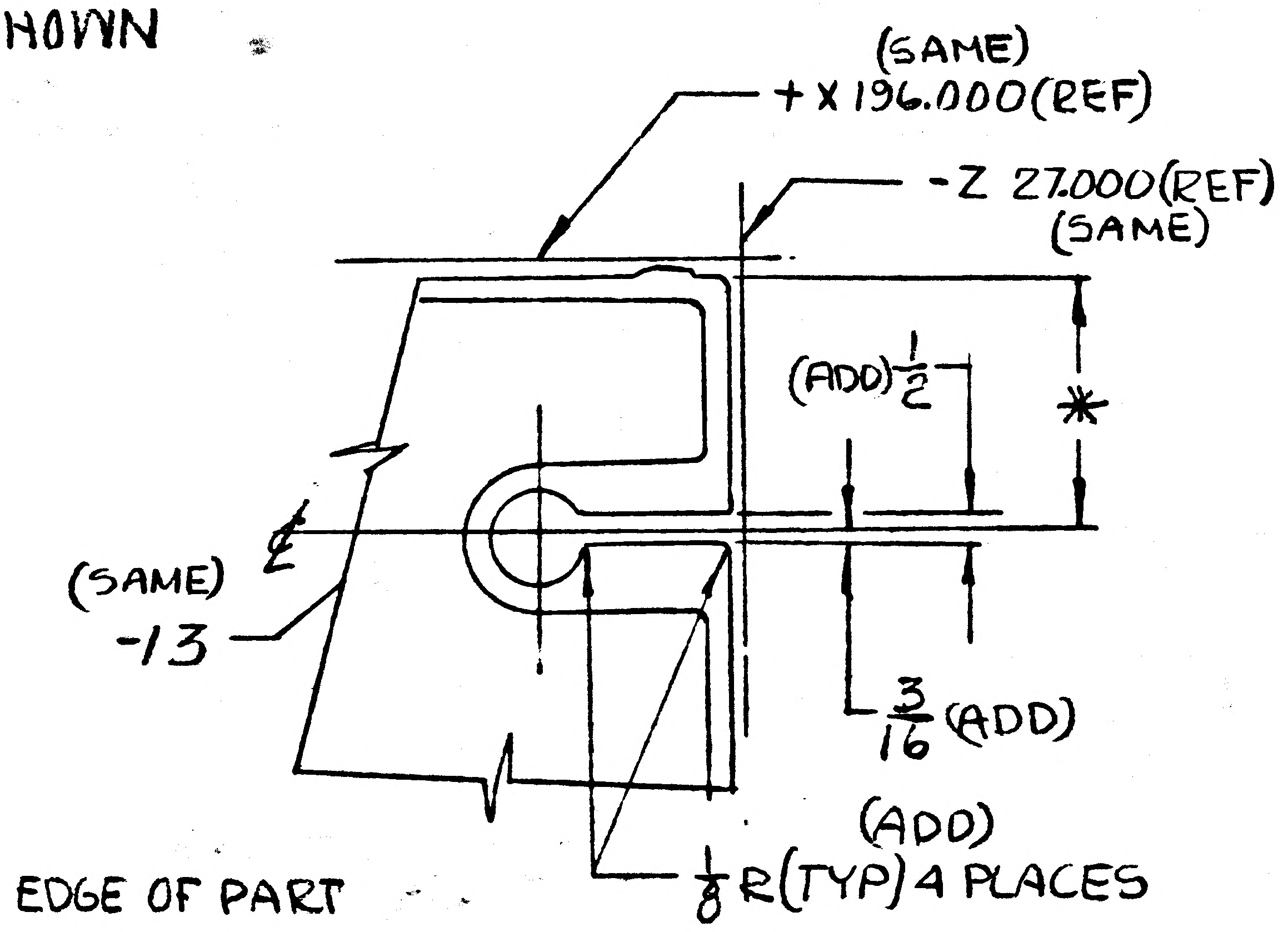
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG 32.1 REV 3-65 B **ENGINEERING OR**[illegible] *

DWG. NO.	LDW280-18439	EO NO.	B2
CONTROL INFO NO.	LDW280A8705		

REVISE -13 AS SHOWN



* PARALLEL WITH EDGE OF PART

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1997 5

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC C EO RELEASE
SALVAGE OF WIRE RUNS	ADDED SLOT CUTOUT FOR -13	JK 9/11/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	LM-15 (45)
		LTA-3 (13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	9/8			9/8/67	9/9/67		9/11/67	9-11-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB DESCENT STAGE BEAM PANEL AFT L.H.	LDW280-18439	B2

9/9 ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 25

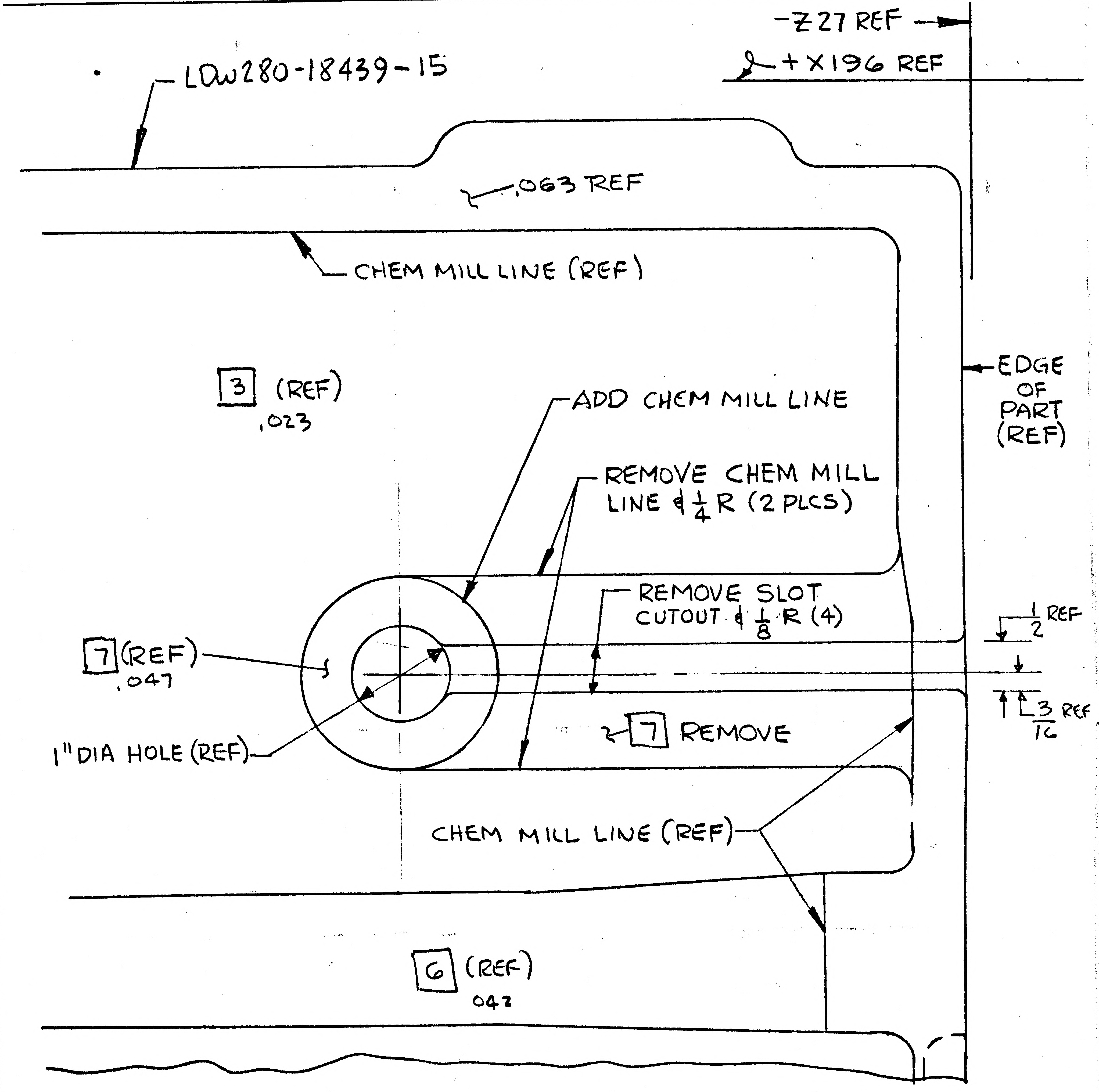
01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-18439
EO NO. B3
CONTROL INFO NO. LDW280A 9495


-Z27 REF
+X196 REF
LDW280-18439-15
.063 REF
CHEM MILL LINE (REF)
EDGE OF PART (REF)
3 (REF)
.023
ADD CHEM MILL LINE
REMOVE CHEM MILL LINE ℄ 1/4 R (2 PLCS)
REMOVE SLOT CUTOUT ℄ 1/8 R (4)
1/2 REF
3/16 REF
7 (REF)
.047
1" DIA HOLE (REF)
7 REMOVE
CHEM MILL LINE (REF)
6 (REF)
.042

ADD -15 IDENT TO -13 EXCEPT AS NOTED
-15 EFF LM-6(36) THRU LM-15(45), N/A LDW280-23539,
1 REQD/MOD
REMOVE LM-6(36) THRU LM-15(45) REQMTS FROM -13

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2183

3

REASON FOR EO: REMOVE ELEC HARNESS SLOT FROM WEB

DESCRIPTION OF EO: ADDED -15
REMOVED LM-6(36) THRU LM-15(45) REQMTS FROM -13

GAEC EO RELEASE: JK 10/17/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/5/67			10/5/67	10/6/67		10/6/67	10-17-67

PRIORITY: C
DRAWING TITLE: WEB D/S BEAM PANEL AFT L.H.
DRAWING NO. LDW280-18439
EO NO. B3

10/13 ISSUED BY J.LANG / J.STRAKOSCH X1153 10/5/67 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1376
CONTROL INFO NO. LDW280B 7434

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18430	✓	C4	SEE DWG
↑ -18431	✓	C2	↑
-18432	✓	C1	
-18433	✓	C2	
-18434	✓	C1	
-18435	✓	B4	
-18436	✓	C2	
-18437	✓	B6	
↓ -18438	✓	C1	↓
LDW280 -18439	✓	C2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG. 9 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69 8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/ /69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GRP~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1376

052B69
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1651
CONTROL INFO NO. LDW280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
✓ 438		C2
✓ 439		C3
457		A3
458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	OBt				N			
DATE	7-29-69			7/ /69	8-2-69			8/29/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18441 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23541	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
LM	LDW280-23541	LTA-3D (13)	1
PART NO. LDW280-18441-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
		PRIM NO.	JK (001)		
LAST DASH NO. USED	-11	207	11-F-11H	1/2/	ok

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1997	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	H. DEUTSCH		
LAYOUT BY	J. ANDERSON		
CHECKED BY	J Kartzman 9-12-67		
~~GR LEADER~~			
VEH DES INT	9/23/67		
STRUCTURE	W.S. M.H. 9/25/67	PROJ ENGR	9/27/67
STRUCTURE	ED 9/26	REL GROUP	9/30/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE
LOWER DECK-RIGHT HAND

SIZE	CODE IDENT NO.		
B	26512	LDW280-18441	A
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00 1.10 2.00, 3.00 4.00				✓		EO A1 LCD 1997	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO.	LTA-3D (13) LM-4 (34) THRU LM-15 (45)	NOT	REQD	H. DEUTSCH 9-19-67		
	2	1.10, 3.00				✓		LEO 280-696 LCD 1997	ADDED NOTE #(*) REMOVED NOTES #(X, Y, Z)						
	3	1.10, 3.00							REF EO A1 & A2 (LEO 280-696) ALL NOTES NOT APPLICABLE ADDED NOTES #1, 2 & 3.				JK		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS					
A	—	9/23/67	9/25/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18441	A
SCALE NONE		SHEET 1.10	

Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18441-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X57X59	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

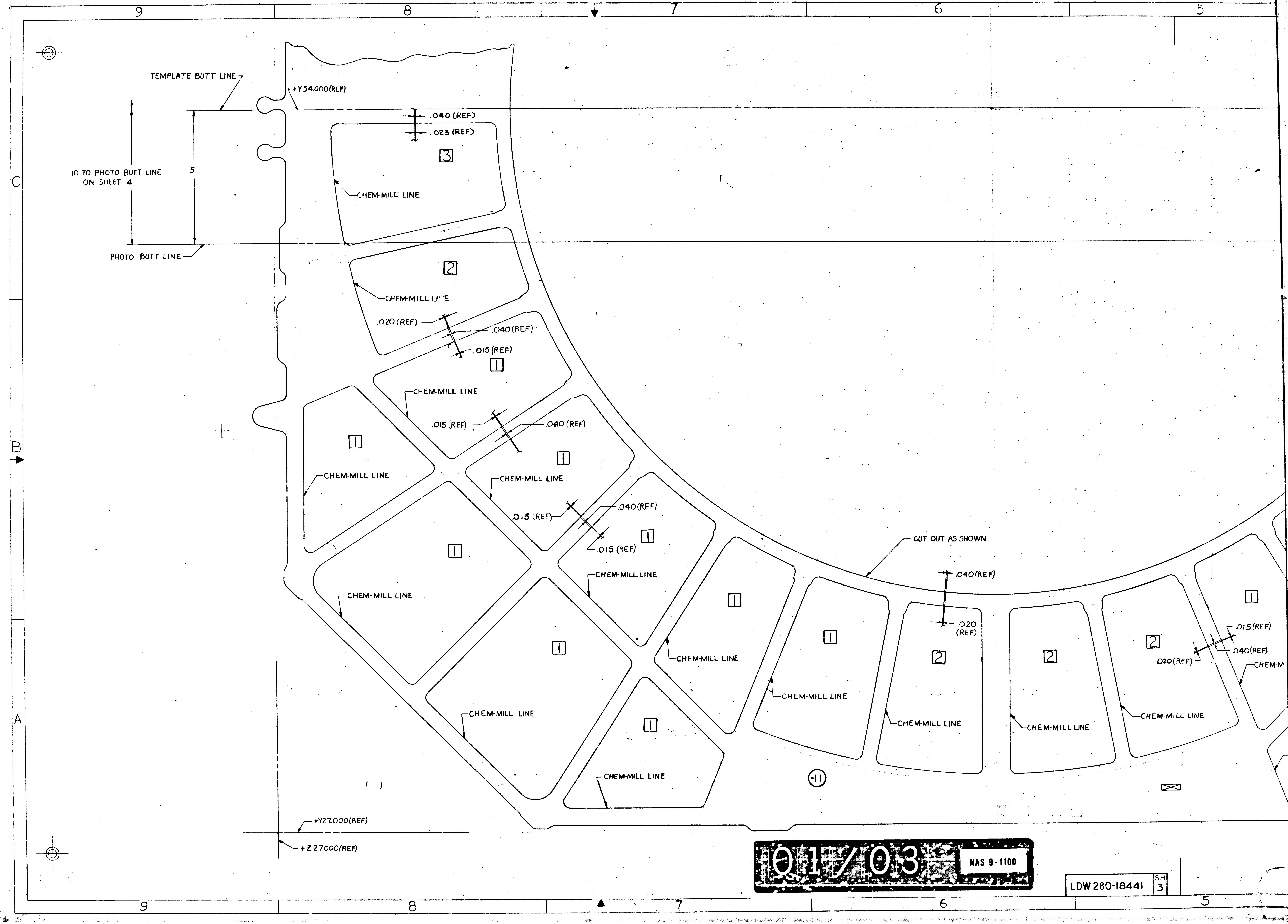
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

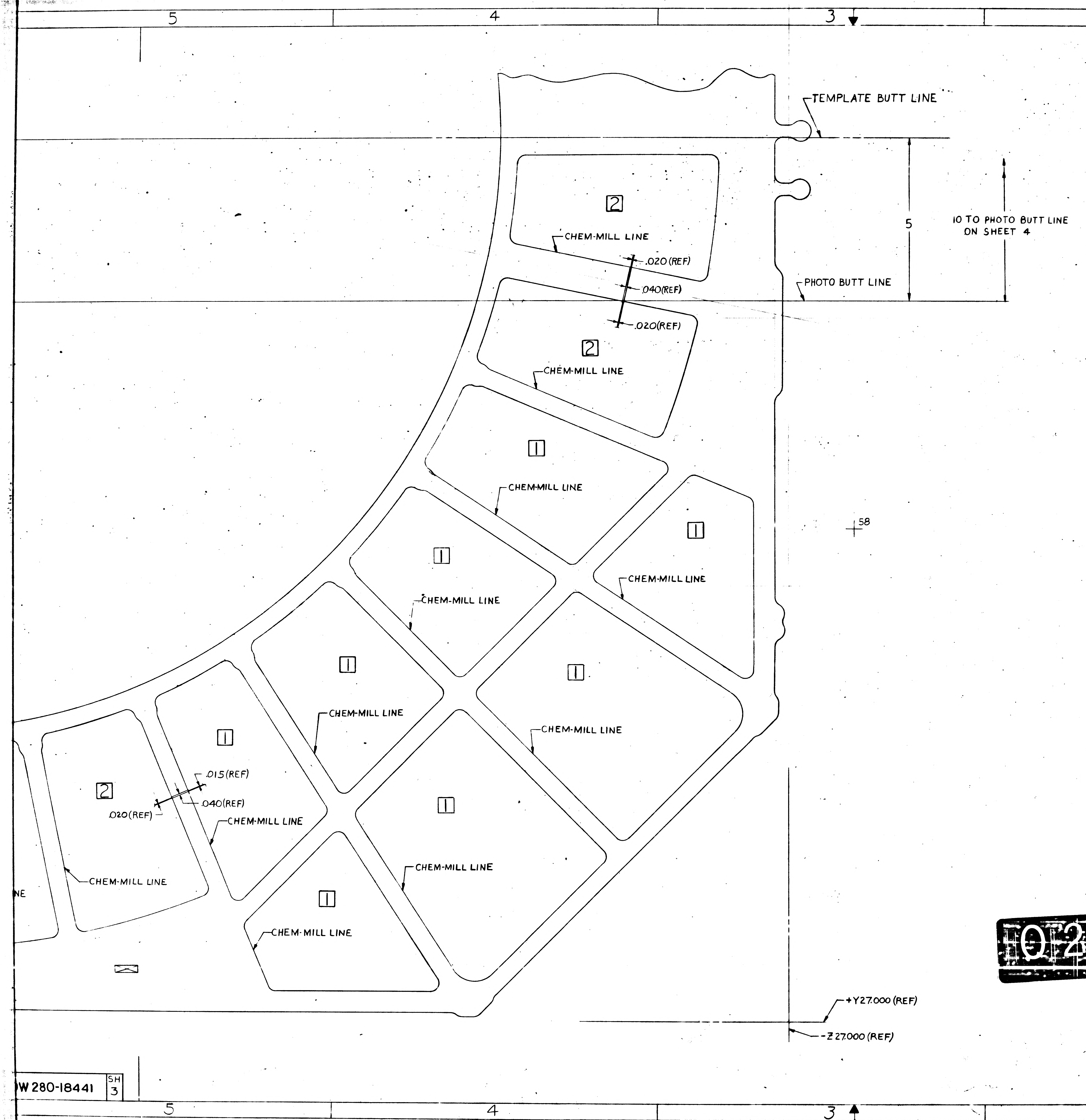
SIZE B
CODE IDENT NO. 26512
LDW280-18441 A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
+Y54.000(REF)
.040 (REF)
.023 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
5
3
CHEM-MILL LINE
PHOTO BUTT LINE
2
CHEM-MILL LINE
.020 (REF)
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.015 (REF)
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CUT OUT AS SHOWN
.040 (REF)
.020 (REF)
1
CHEM-MILL LINE
1
CHEM-MILL LINE
2
CHEM-MILL LINE
2
CHEM-MILL LINE
2
.015 (REF)
.040 (REF)
.020 (REF)
CHEM-MIL
CHEM-MILL LINE
1
CHEM-MILL LINE
-11
+Y27.000(REF)
+Z27.000(REF)
Q1/03
NAS 9-1100
LDW 280-18441
SH 3


5
4
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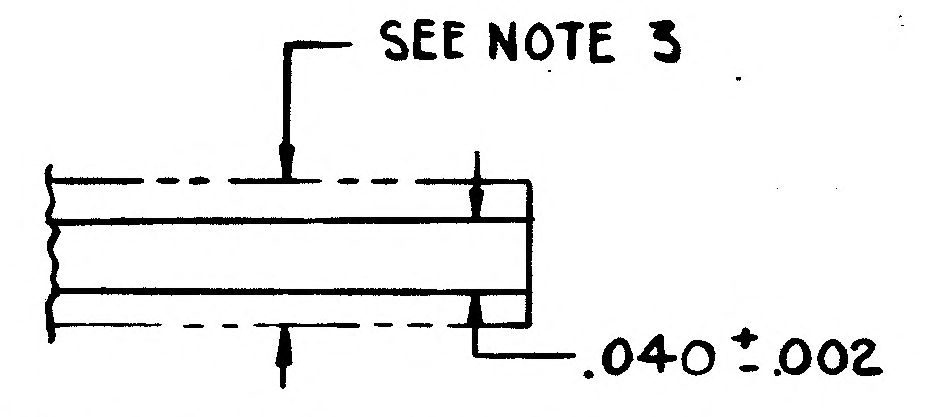
80
30
TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 4
PHOTO BUTT LINE
2
CHEM-MILL LINE
.020 (REF)
.040 (REF)
.020 (REF)
2
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
58
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
2
.015 (REF)
.040 (REF)
.020 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
NE
+Y27.000 (REF)
-Z27.000 (REF)
5
4
3
2

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18441-11 IS SIMILAR TO LDW280-17140-17.
3. FABRICATE LDW280-18441-11 PER LPC 280-43.


SEE NOTE 3
.040 ± .002

FOR ENGRG REF ONLY-NO SCALE

LDW280-18441-11

CHEM-MILL LINE TOLERANCE
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.015 {}^{+.002}_{-.002}$	.025 (REF)
2	$.020 {}^{+.002}_{-.002}$	.020 (REF)
3	$.023 {}^{+.003}_{-.002}$	.017 (REF)

02/03 NAS 9-1100

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NOTES C

RUBBER S
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.063R T
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OF CUTT
INTERSE

DIAMETI
MUST B

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CHROME

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THICKN
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BE .000
NO ALL
HOLES

125

200

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BREAK

INSPECT
MINIMU
AVERAG
MARKED

SYMBOL
TO BE

UNLESS
TOLERA

LENGTH
RIVETS
NOT SP

TOLERA
DELINEA

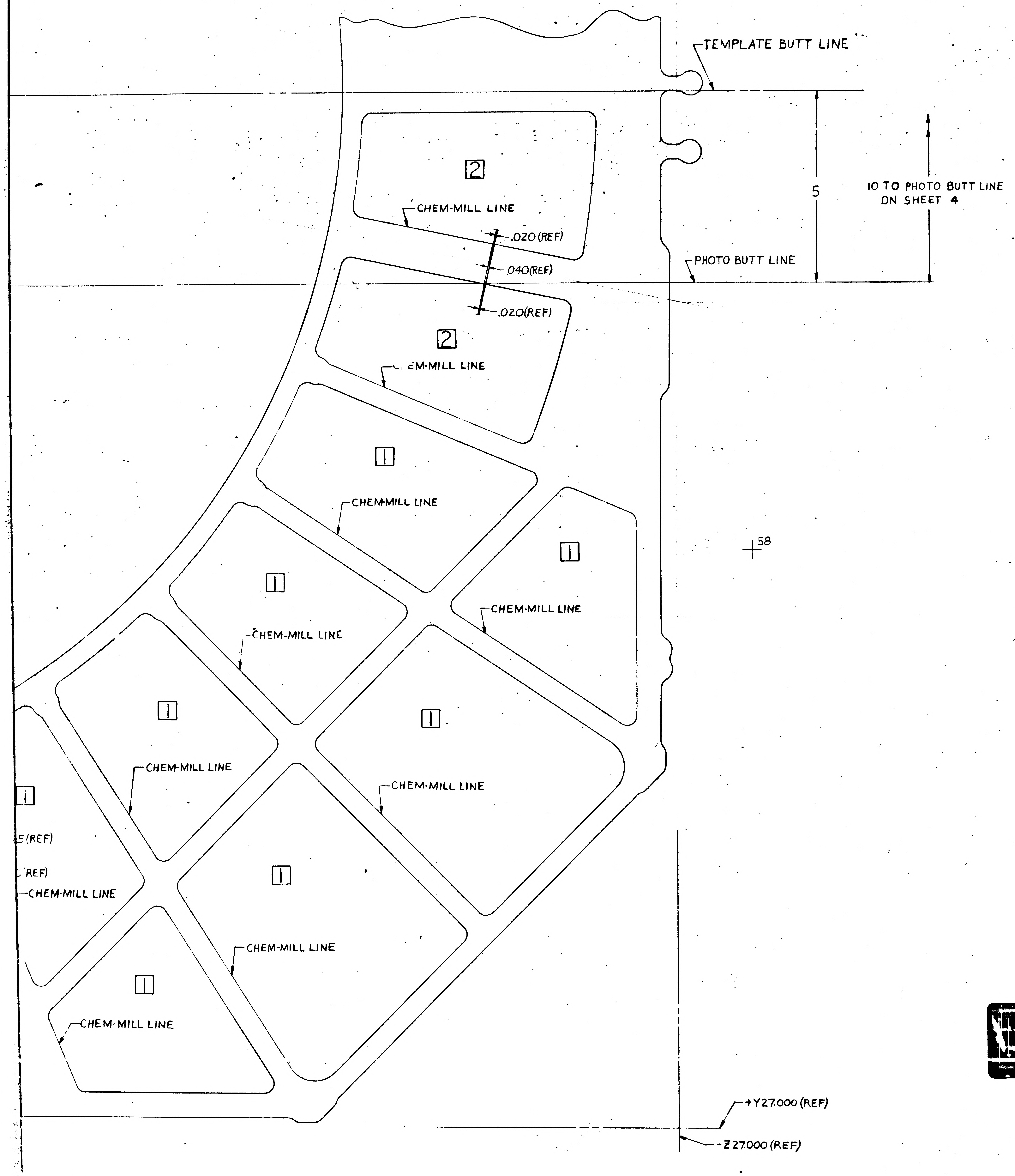
LM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENGRG CO

SIZE	CODE IDENT NO.	
J	26512	LDW

SCALE FULL

FOR PHOTO REPRODUCTION


80
30
TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 4
PHOTO BUTT LINE
2
CHEM-MILL LINE
.020 (REF)
.040 (REF)
.020 (REF)
2
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.5 (REF)
C REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
58
+Y27.000 (REF)
-Z27.000 (REF)

NOTES:

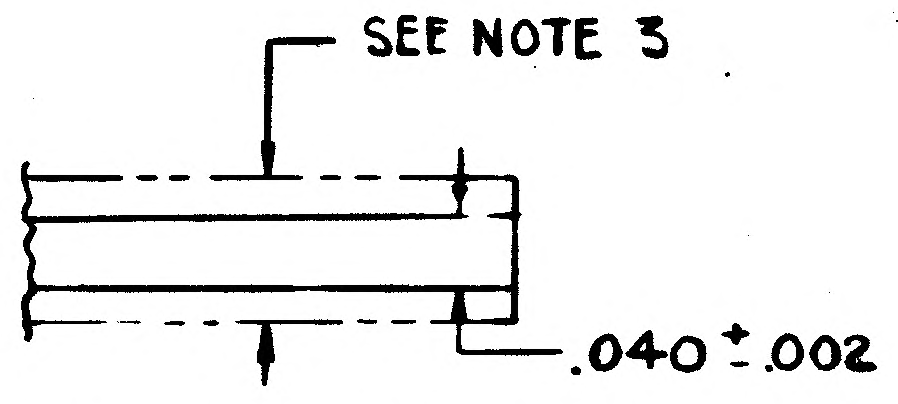
1. NO TOOLING HOLES PERMITTED IN PART.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18441-11 IS SIMILAR TO LDW280-17140-17.
3. FABRICATE LDW280-18441-11 PER LPC 280-43.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 105)= 26 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ. FT.
PRINT TRIM LINE


SEE NOTE 3
.040 ± .002

FOR ENGRG REF ONLY - NO SCALE

LDW280-18441-11

CHEM-MILL LINE TOLERANCE
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 +.002 -.002	.025 (REF)
2	.020 +.002 -.002	.020 (REF)
3	.023 +.003 -.002	.017 (REF)

03/03 NAS 9-1100

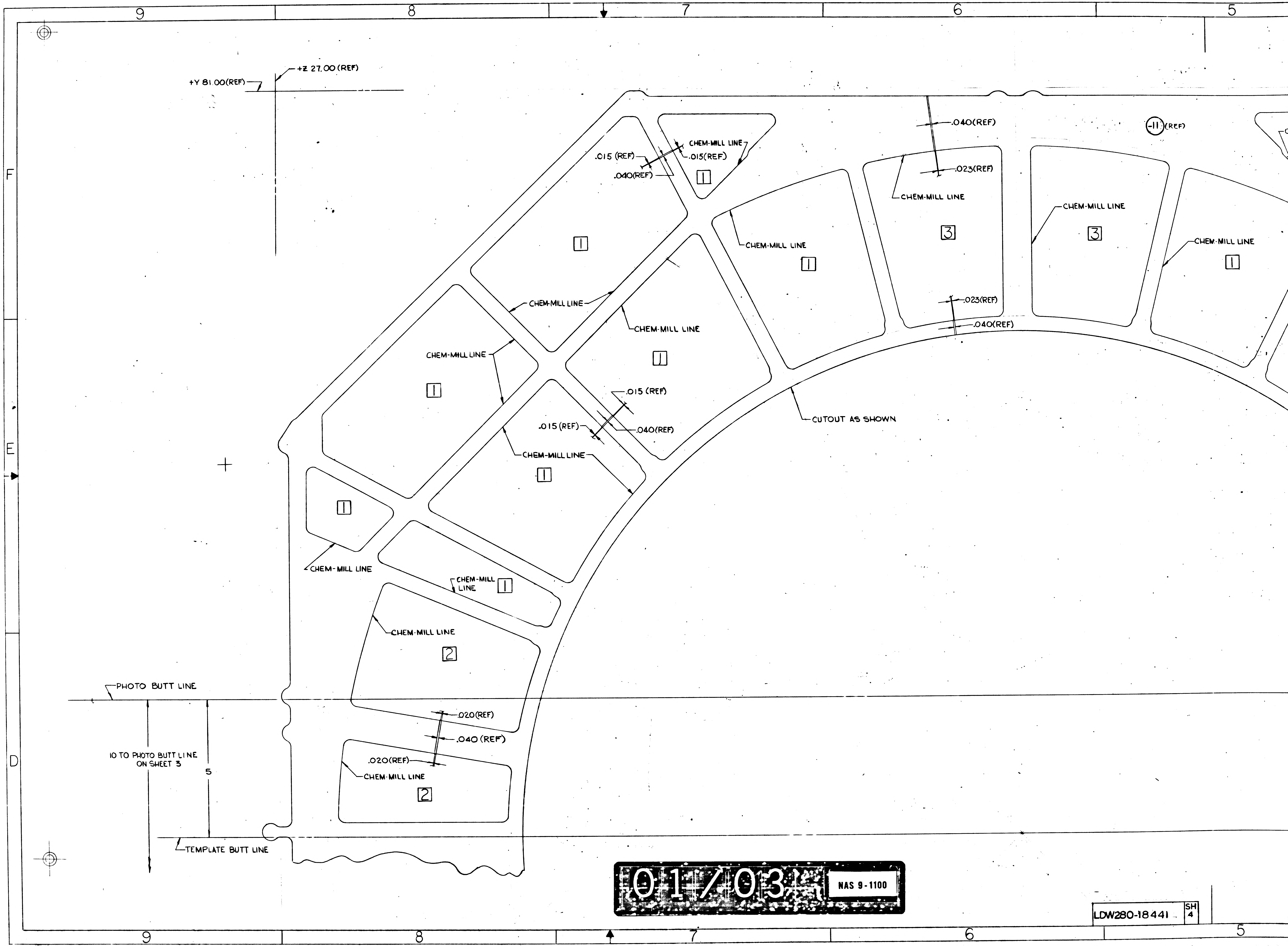
LM	
MODEL OR END ITEM	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-18441	A
SCALE FULL		SHEET 3.00	

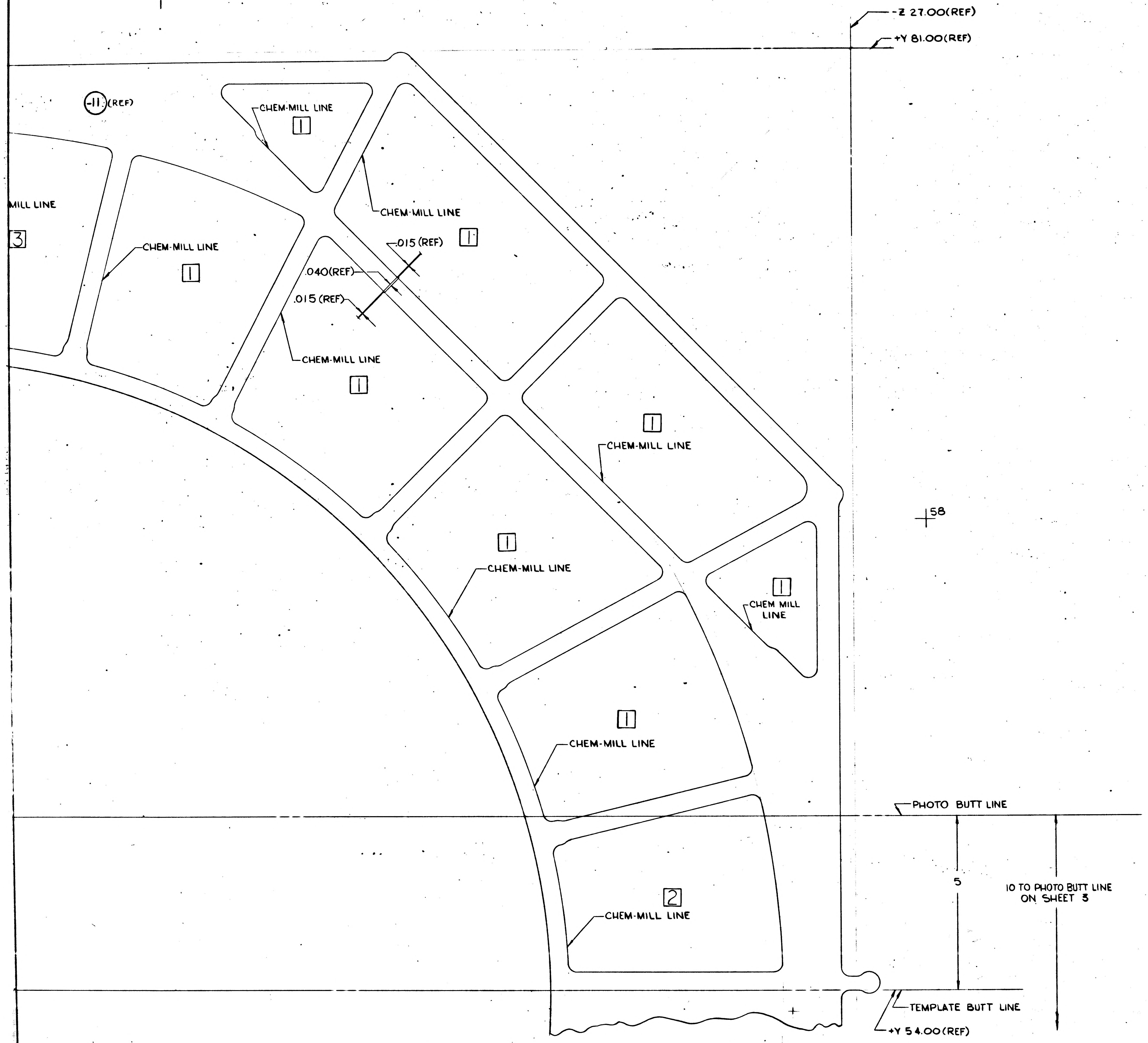
FOR PHOTO REPRODUCTION 3FR K2

LDW280-18441A


+Z 27.00 (REF)
+Y 81.00 (REF)
.015 (REF)
.040 (REF)
CHEM-MILL LINE
.015 (REF)
1
.040 (REF)
.023 (REF)
-11 (REF)
CHEM-MILL LINE
3
CHEM-MILL LINE
3
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.023 (REF)
.040 (REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.015 (REF)
.015 (REF)
.040 (REF)
CUTOUT AS SHOWN
CHEM-MILL LINE
1
1
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
2
PHOTO BUTT LINE
.020 (REF)
.040 (REF)
.020 (REF)
CHEM-MILL LINE
2
10 TO PHOTO BUTT LINE ON SHEET 3
5
TEMPLATE BUTT LINE
9
8
7
6
5
F
E
D
LDW280-18441
SH 4

01/03

NAS 9-1100


TRIM
GEOM
S-8
80
30
-Z 27.00(REF)
+Y 81.00(REF)
-11 (REF)
CHEM-MILL LINE
1
MILL LINE
3
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.015 (REF)
.040(REF)
.015 (REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM MILL LINE
58
1
CHEM-MILL LINE
2
CHEM-MILL LINE
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
+Y 54.00(REF)

02/03

NAS 9-1100

MANUFACTURI
UNLESS OTHE
NOTES CHECKED ✓

PART
AND ALL OTHER MA
IN REGION MARKED
USE BOTH SIDES IF

FILLET AND INSIDE
RADII TOLERANCES
.016R TO .062R ±
.063R TO .250R ±
OVER .250R ±

DEPTH SHOWN FOR
HOLES IS FULL TH
BEYOND PERMISSIB

EXTERNAL THREAD
SHOWN INCLUDES
2 IMPERFECT THRE

DO NOT CADMIUM
HOLES OR SURFAC
WITH DOUBLE AST

MISMATCH STEP O
PERMISSIBLE DUE
OF CUTTERS AT IN
INTERSECTING SUR

DIAMETERS MARKE
MUST BE CONCEN

READING

HOLES MUST BE
CHROME PLATING

ALL DIMENSIONS
AFTER CADMIUM
THICKNESS OF PL
TO .0005 MAX. MI
BE .0002 ON THRE
NO ALLOWANCE F
HOLES

125 SURFACE
INCLUDIN
PER MIL-S

250 FOR ALL

REMOVE ALL BUR
BREAK ALL EDGES

INSPECTION INFO
MINIMUM PERMIS
AVERAGE EDGE D
MARKED IS

SYMBOL ✓ DEN
TO BE MACHINED

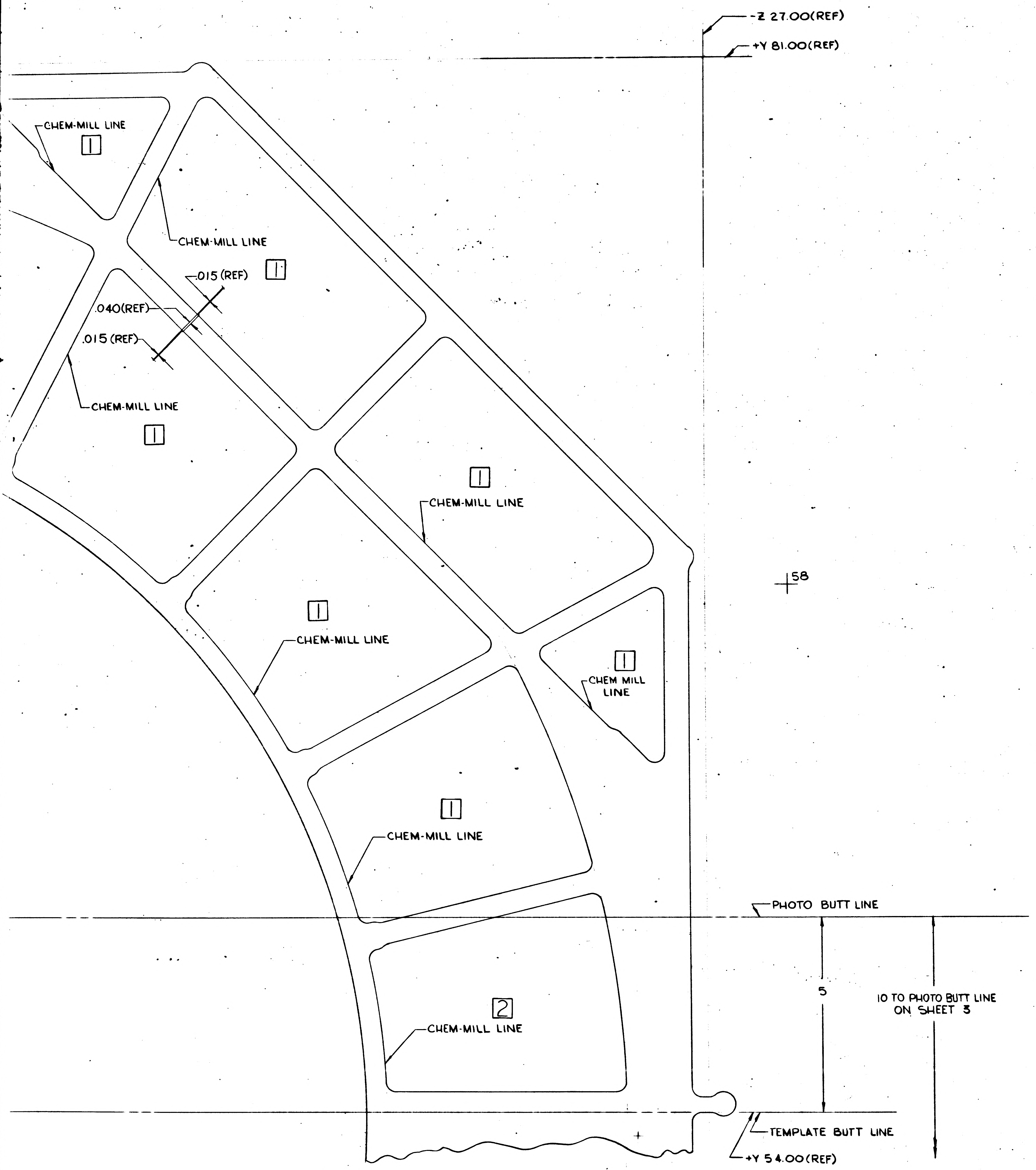
UNLESS OTHERW
TOLERANCE ON F

LENGTHS OF AN,
RIVETS SHORTER
NOT SPECIFIED.

TOLERANCE ON L
DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BE
SIZE J CODE IDENT NO. 26512 LDW280
LM
MODEL OR END ITEM
SCAL FULL

FOR PHOTO REPRODUCTION


-Z 27.00(REF)
+Y 81.00(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.015 (REF)
.040(REF)
.015 (REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM MILL LINE
1
CHEM-MILL LINE
2
CHEM-MILL LINE
58
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
+Y 54.00(REF)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

250 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 105)= 26 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ. FT.

PRINT TRIM LINE

LDW280-18441 A

LDW280-18441 A

03/03 NAS 9-1100

LM	GRUMMAN AIRCRAFT ENG'RG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18441	A
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

④

FOR PHOTO REPRODUCTION 3FR, K3

LDW280-18441	SH 4

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18441
EO NO. A1
CONTROL INFO NO. LDW280A8798

CREATE -11 WEB SAME AS LDW280-17140-17 EXCEPT AS SHN.
EFF FOR -11 LEM-4(34) THRU LEM-15(45) & LTA-3D (13)
N/A LDW280-23541 LEM-4(15) THRU LEM-15(45) & LTD-3D(13).
1 REQD PER MOD ~ ALL NOTES APPLY EXCEPT NOTE 3 & 4 & EO C5

I & T (S)

(SAME)	(ADD) LDW280-18441-11		
LDW280-17140-17 SYMBOL	SYMBOL	THK AFTER CHEM-MILL	DEPTH OF CUT
1	1	.015 ±.002	.025 (REF)
2			
3			
4	2	.020 ±.002	.020 (REF)
5	3	$.023 \begin{smallmatrix}+.003\\-.002\end{smallmatrix}$	.017 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18441-11 IS SIMILIAR TO LDW280-17140-17

-11 IDENTICAL TO LDW280-17140-17 REV B INCLUDING EO C_1(LEO 167), C_2 (LEO 205) C_3, C_4, C_5, C_6(LEO 545) C_7(LEO 599) C_8, C_9

* NEW DWG – NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997

5

REASON FOR EO: TO IMPROVE QUALITY OF CHEM-MILL WEB

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

PRIORITY: C

APPROVED BY	JAP			JAL	NM				
DATE	8/18/67			8/18/67	8-19-67		8/21/67	8/22/67	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

DRAWING TITLE: WEB-DESCENT STAGE – LWR DECK R.H.

DRAWING NO. LDW280-18441

EO NO. A1

8/25

ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280		EO NO. 696	
CONTROL INFO NO. LDW280A 8879			

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. No.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCD1997	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FABRICATION PROCEDURE CHANGE	ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)	JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY			
✓ REVISE DWG	RECORD EO	NOT REQD REWORK SCRAP	DATE 8/21/67		
PRIORITY C		DRAWING TITLE NOTED			

V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
			—	NM 8/23/67		8/24/67	8-28-67

DRAWING NO. LEO 280
EO NO. 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

	DWG	TITLE	CHANGE
✓	LDW280-18424	SEE DWG	B1
✓	-18425	↑	B1
✓	-18426		B1
✓	-18427		B1
✓	-18428		B1
✓	-18429		B1
✓	-18430		B1
✓	-18431		B1
✓	-18432		B1
✓	-18433		B1
✓	-18434		B1
✓	-18435		B1
✓	-18436		B1
✓	-18437		B1
✓	-18438		B1
✓	-18439		B1
✓	-18441		B1
	-18442		B1
	LDW280 -18443	↓	B1
	LDW280 -18444	SEE DWG	B1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1997	5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D(13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY								
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67

DATE: 9/7/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

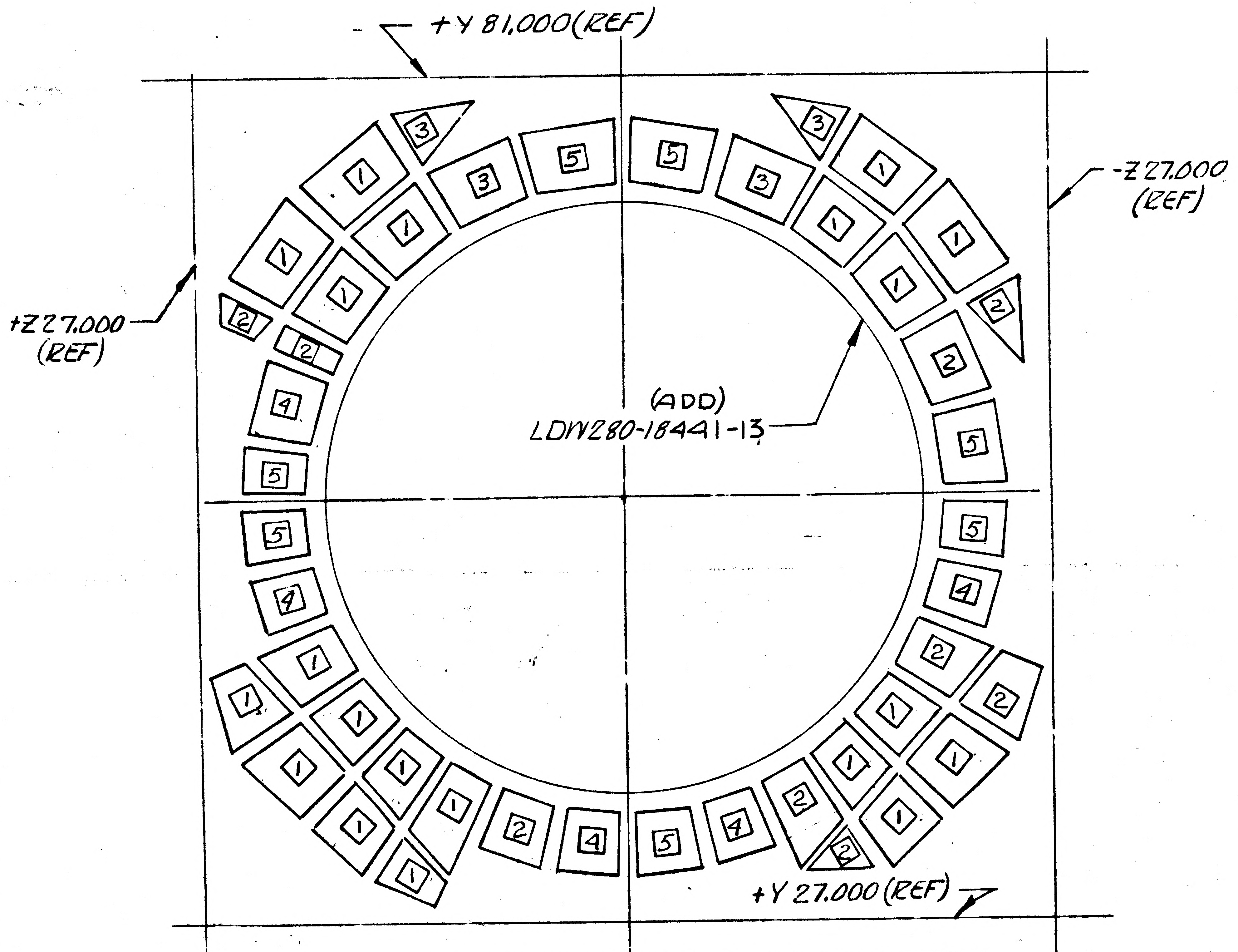
01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18441	EO NO.	B2
CONTROL INFO NO.	LDW280A9627		

ADD -13 IDENTICAL TO LDW280-18441-11 EXCEPT AS NOTED
--13 EFF LTA-3(13) LM-6(36) THRU LM-15(45) N/A LDW280-23541 1 REQD/MOD
REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) REQMTS FROM -11



LDW280-18441-13		
SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	.012 +.003 -.002	.028 (REF)
2	.015 +.003 -.002	.025 (REF)
3	.018 +.003 -.002	.022 (REF)
4	.021 ±.003	.019 (REF)
5	.027 +.004 -.003	.013 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2220 3

REASON FOR EO	DESCRIPTION OF EO
REVISE MIN WEB GAGE	ADDED -13 REMOVED [illegible] LTA-3(13), LM-6(36) THRU LM-15(45) REQMTS FROM -11

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY							
LM		LM-6(36) THRU	LM-15(45)	REVISE DWG ✓ / RECORD EO	REWORK / SCRAP -11	DATE	10/23/67			10/25/67	10/27/67		10/26/67 / 10-27-67
		LTA-3(13)				B	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB DESCENT STAGE LOWER DECK RIGHT HAND	LDW280-18441	B2

10/30 ISSUED BY J. Anderson / W. Strickland x1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1680
CONTROL O NO. LDW280B7767

FOR N/A LDW280-23541, REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH * ON THE FOLLOWING DWGS

PART NO *	CHANGE NO	DWG NOMENCLATURE
LDW280-18688-19	B7	SEE DWG
LDW280-18441-13	B5	SEE DWG
LDW280-M17289-1	A5	
LDW280-M17331-3	D4	
LDW280-M17546-1	C3	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 57 Pg 1 & 4 (5)

REASON FOR EO: REDESIGN OF LOWER DECK TO ACCOMMODATE LARGER TANKS

DESCRIPTION OF EO: RESTRICTED (*) BY REMOVING LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: 8-25-69; JK 9/19/69

MODEL	~~PROCURING ACTIVITY~~ NO. EF	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40,	THRU LM	-14(44)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	PBF								
DATE	8/19/69			8/18/69	8/19/69		8/19/69	9/19/69	
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO280
EO NO.: 1680

10-31-69
ISSUED BY TIENKEN/THORJUSEN X87222 7/30/69 SECTION VD I GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18442 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23542	LM-15(45)	1
	LDW280-23542	LM-14(44)	1
	LDW280-23542	LM-13(43)	1
	LDW280-23542	LM-12(42)	1
	LDW280-23542	LM-11(41)	1
	LDW280-23542	LM-10(40)	1
	LDW280-23542	LM-9(39)	1
	LDW280-23542	LM-8(38)	1
	LDW280-23542	LM-7(37)	1
	LDW280-23542	LM-6(36)	1
	LDW280-23542	LM-5(35)	1
	LDW280-23542	LM-4(34)	1
LM	LDW280-23542	LTA-3D(13)	1
PART NO. LDW280-18442-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 ③

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
		PRIM NO.	JK(00!)
LAST DASH NO. USED	-11	207	[illegible] 10/2/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1997

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	C.D'AVELLA 8-31-67		
LAYOUT BY	J. ANDERSEN		
CHECKED BY	J Kartzman 9-18-67		
GR. LEADER			
VEH. DES. INT.	[illegible] 9/23/67		
STRUCTURE	[illegible] 9/25/67	PROJ ENGR	[illegible] 9/23/67
STRUCTURE	EP 9/24	REL GROUP	[illegible] 9/30/67
WEIGHTS		RELEASE	

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE
LOWER DECK ~ LEFT HAND

SIZE	CODE IDENT NO.		
B	26512	LDW280-18442	A
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3. & 4.00	6A			✓		EOA1 LCD-1997	EOA1 INITIAL DWG RELEASE PARTS MADE PER EO.	LM-4 THRU LM-15 & LTA-3D	NOT	REQD	C. D'AVELLA 8-31-67		
	2	1.10 & 3.00				✓		LEO280-696 LCD-1997	ADDED NOTE ✱ ~ REMOVED NOTE (X, Y & Z)						
	3	1.10 & 3.00							Ⓐ REF EO A1 & A2 ~ ALL NOTES NOT APPLICABLE ~ ADDED NOTES 1, 2 & 3. Ⓑ	NOT REQD		JK			

CHG APPROVED LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURE	STRUCTURE	WEIGHTS
A	—	JAS 9/23/67	JM 9/25/67	RF 9/26	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18442	A Ⓐ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18442-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X58X58	SEE NOTE 3		6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

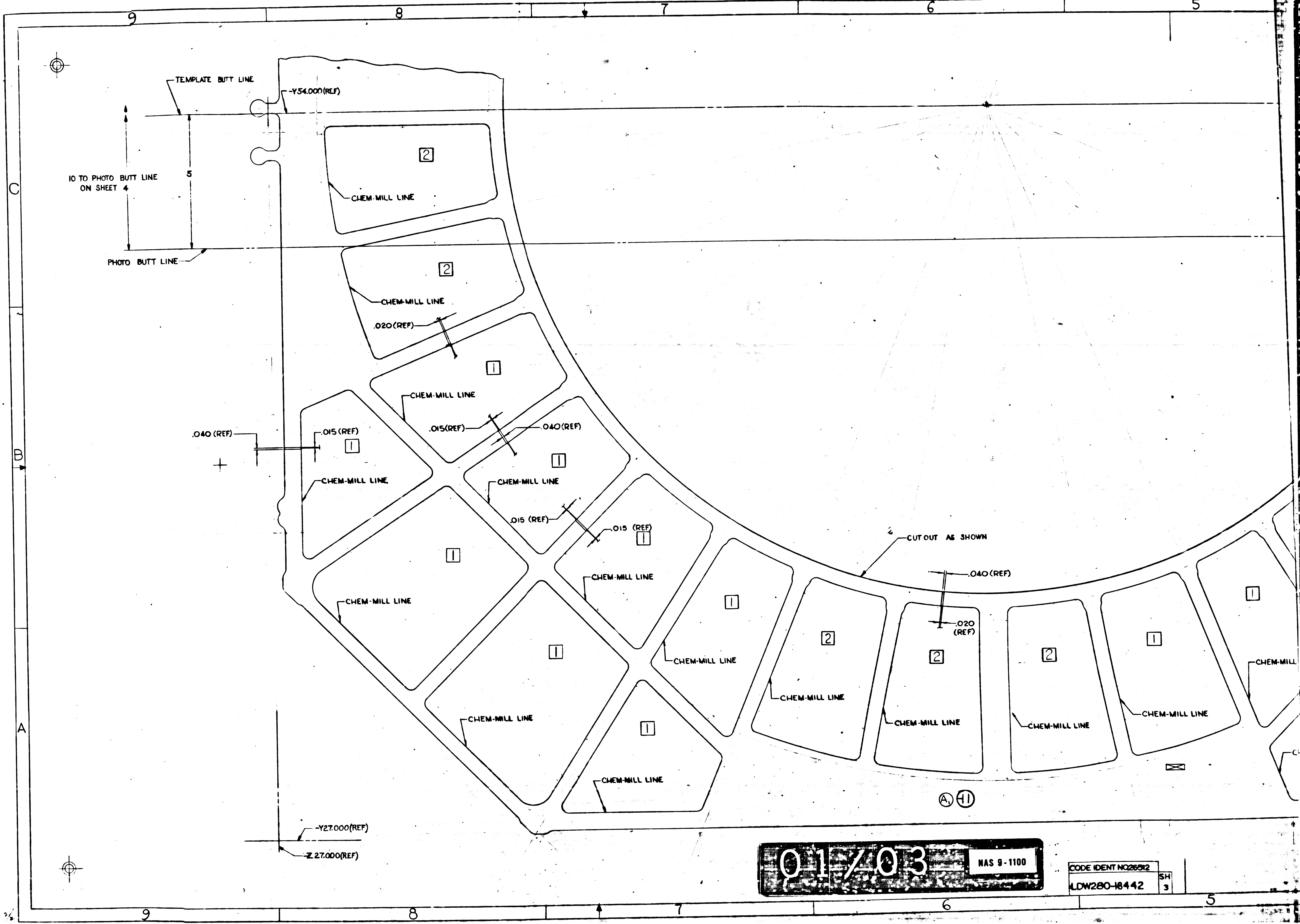
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18442
A Ⓐ
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
-Y54.000 (REF)
10 TO PHOTO BUTT LINE ON SHEET 4
5
PHOTO BUTT LINE
2
CHEM-MILL LINE
2
CHEM-MILL LINE
.020 (REF)
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
1
CHEM-MILL LINE
.015 (REF)
.015 (REF)
1
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CHEM-MILL LINE
CHEM-MILL LINE
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CHEM-MILL LINE
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CHEM-MILL LINE
1
CHEM-MILL LINE
CUT OUT AS SHOWN
.040 (REF)
.020 (REF)
2
CHEM-MILL LINE
2
CHEM-MILL LINE
2
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL
Ⓐ, ⒽⒾ
-Y27.000 (REF)
-Z27.000 (REF)
9
8
7
6
5

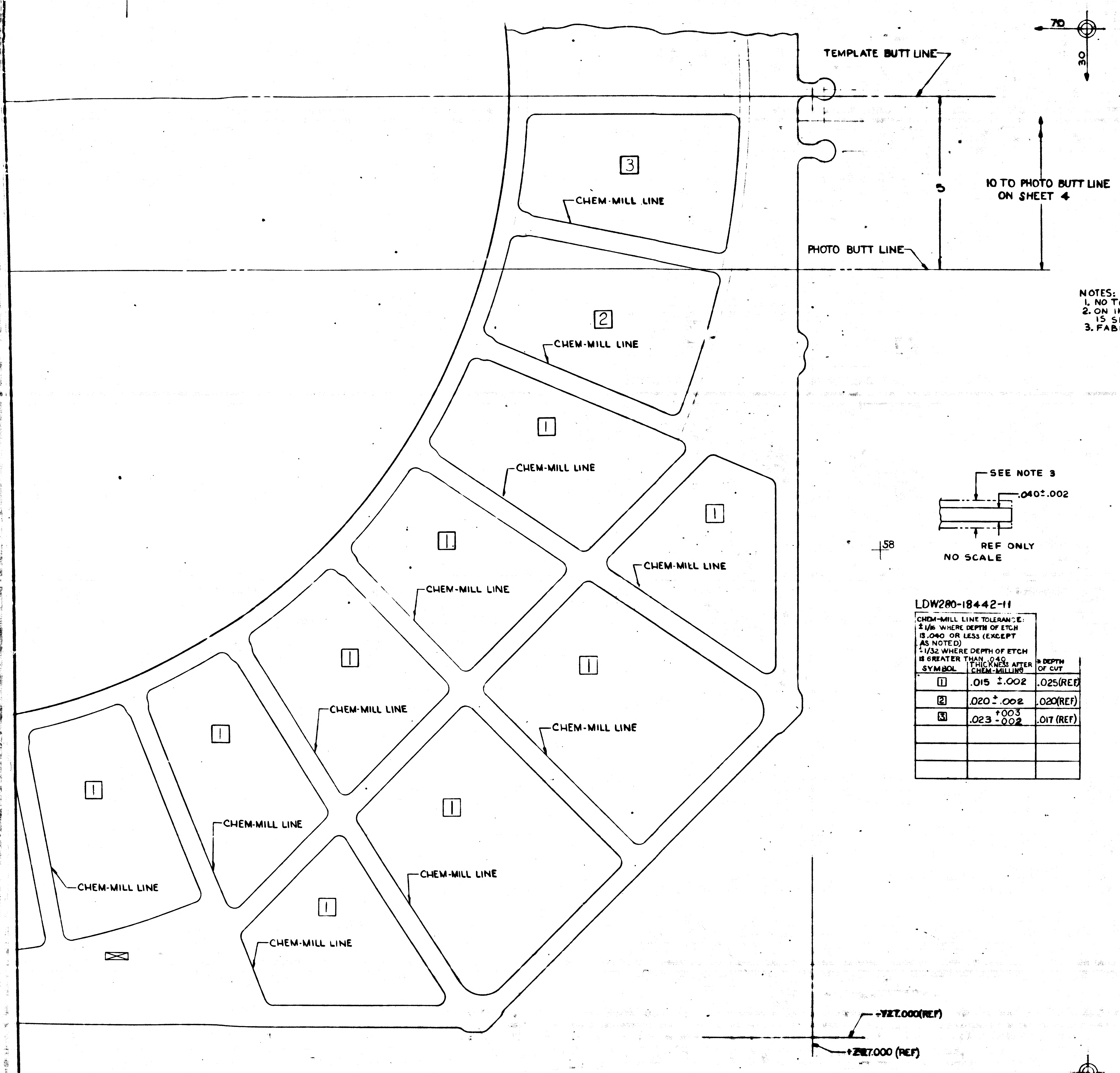
01/03

NAS 9-1100

CODE IDENT NO 26512

LDW280-18442

SH 3



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18442-11 IS SIMILAR TO LDW280-17141-13.
3. FABRICATE -11 PER LPC 280-43.

LDW280-18442-11

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ±.002	.025(REF)
2	.020 ±.002	.020(REF)
3	$.023^{+.003}_{-.002}$	.017 (REF)

MANUFACTURIN
UNLESS OTH
NOTES CHECKED ✓

RUBBER STAMP PART
AND ALL OTHER MA
IN REGION MARKED
USE BOTH SIDES IF

FILLET AND INSIDE
RADII TOLERANCES
.016R TO .062R ±
.063R TO .250R ±
OVER .250R ±

DEPTH SHOWN FOR T
HOLES IS FULL THOS
BEYOND PERMISSIBL

EXTERNAL THREAD L
SHOWN INCLUDES
2 IMPERFECT THREA

DO NOT CADMIUM P
HOLES OR SURFACES
WITH DOUBLE ASTER

MISMATCH STEP OF
PERMISSIBLE DUE TO
OF CUTTERS AT INS
INTERSECTING SURF

DIAMETERS MARKED
MUST BE CONCENTR
READING

HOLES MUST BE KE
CHROME PLATING S

ALL DIMENSIONS S
AFTER CADMIUM PL
THICKNESS OF PLAT
TO .0005 MAX. MIN.
BE .0002 ON THREAD
NO ALLOWANCE FOR
HOLES

125 SURFACE RO
INCLUDING
PER MIL-ST

250 FOR ALL D

REMOVE ALL BURRS
BREAK ALL EDGES

INSPECTION INFOR
MINIMUM PERMISSI
AVERAGE EDGE DIST
MARKED IS

SYMBOL DENOT
TO BE MACHINED

UNLESS OTHERWISE
TOLERANCE ON FLA

LENGTHS OF AN, NA
RIVETS SHORTER T
NOT SPECIFIED.

TOLERANCE ON LO
DELINEATIONS IS

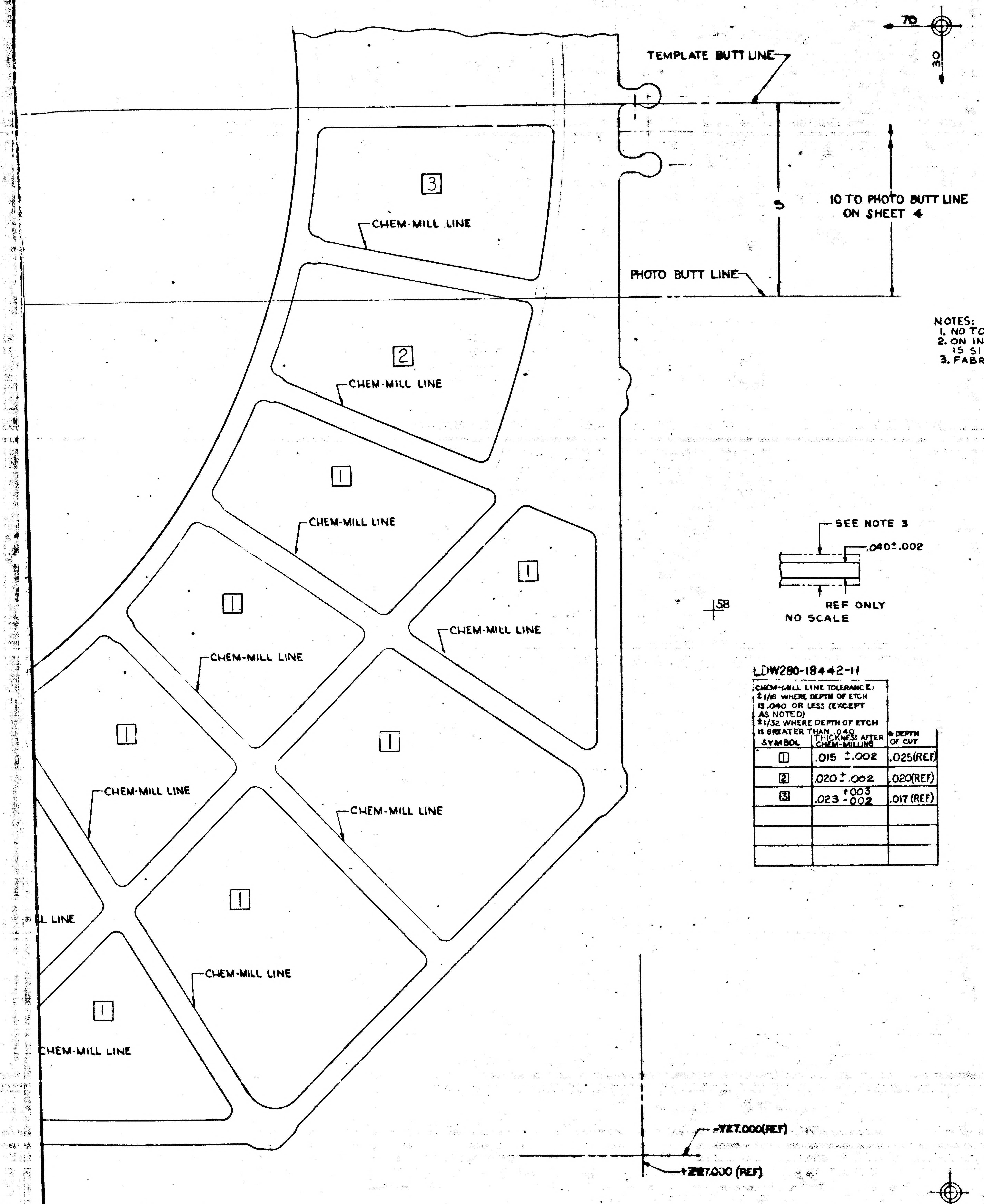
02/03 NAS 9-1100

ENT NO26512
80-18442 SH 3

CODE IDENT NO26512
LDW280-18442 SH 3

L M
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP., BET
SIZE J | CODE IDENT NO. 2651 | LDW280
SCALE FULL

FOR PHOTO REPRODUCTION


4
3
2
1
70
30
TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE
ON SHEET 4
PHOTO BUTT LINE
3
CHEM-MILL LINE
2
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
L LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
SEE NOTE 3
.040±.002
REF ONLY
NO SCALE
58
727.000(REF)
727.000 (REF)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18442-11 IS SIMILAR TO LDW280-17141-13.
3. FABRICATE -11 PER LPC280-43.

LDW280-18442-11

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ±.002	.025(REF)
2	.020 ±.002	.020(REF)
3	.023 $^{+.003}_{-.002}$	.017 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .000R TO .032R ± .010 .033R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .005-.030	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∱ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA
1/2 SIZE SHEET AREA (1/4 OF FULL)
PRINT THIS LINE

C

B

A

LDW280-18442 A

LDW280-18442 A

03/03

NAS 9-1100

LM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-18442	A
SCALE FULL		SHEET 3	

CODE IDENT NO.26512
LDW280-18442
SH 3

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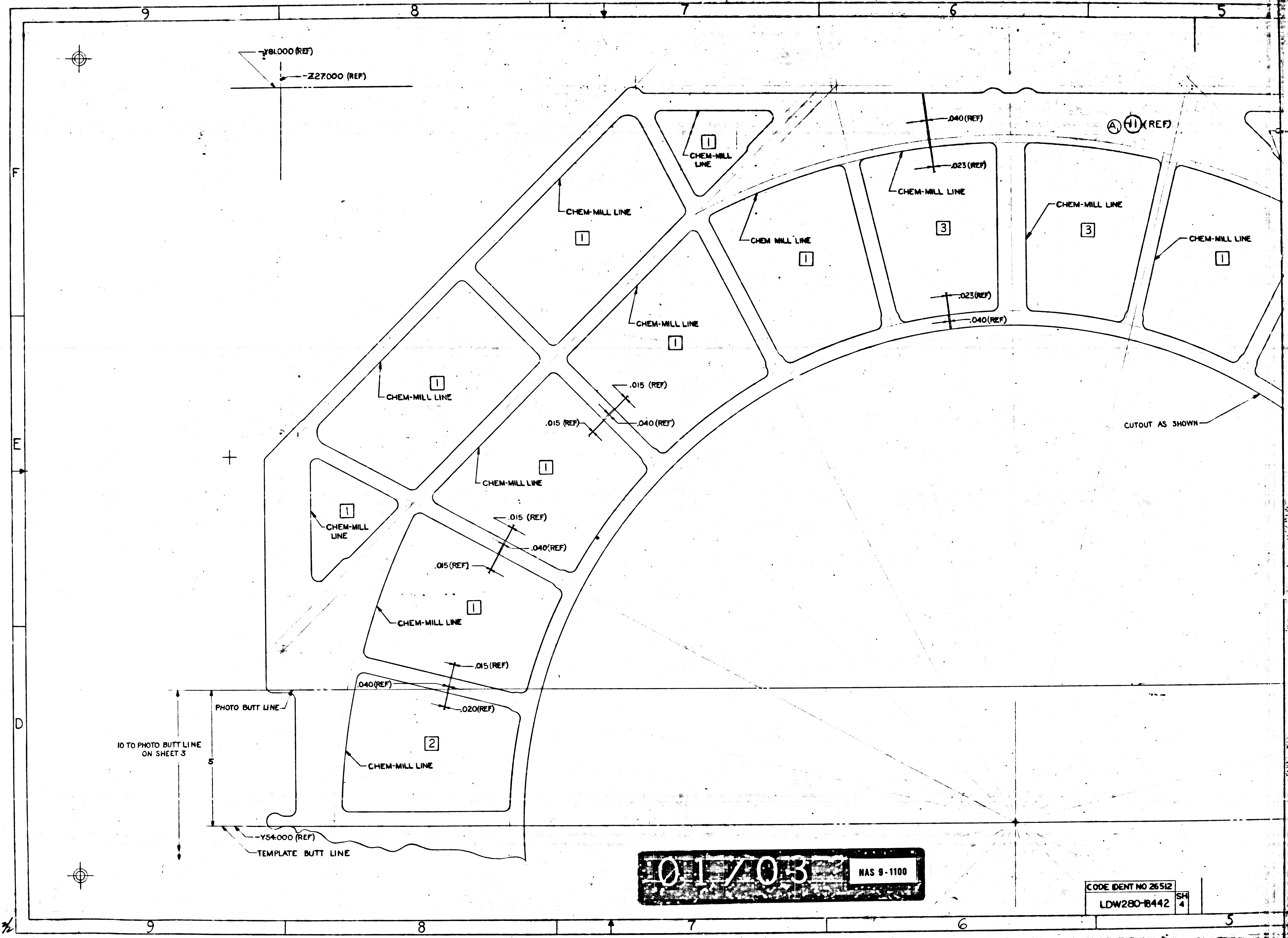
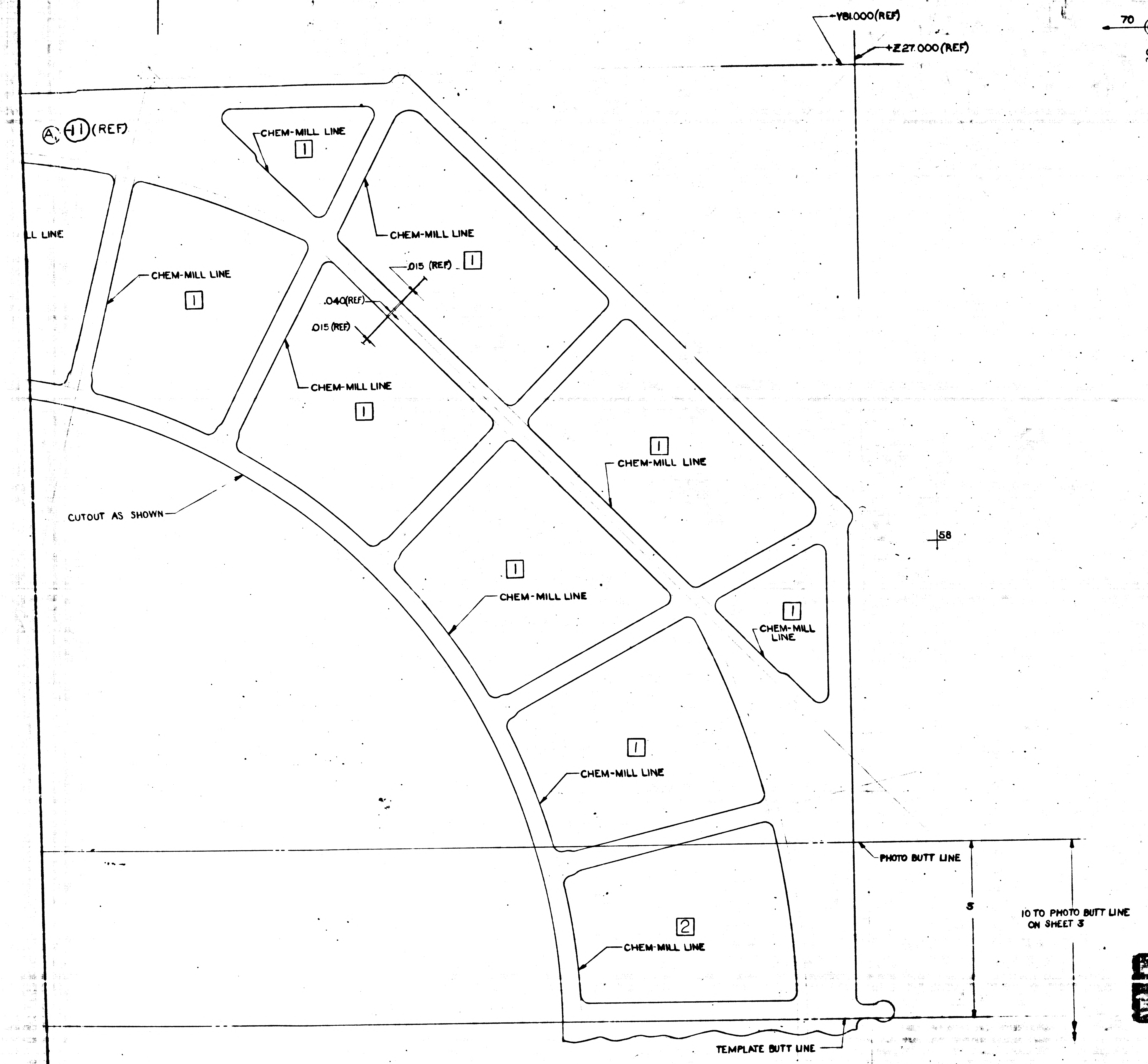


9
8
7
6
5
F
E
D
Y81.000 (REF)
Z27.000 (REF)
.040 (REF)
.023 (REF)
A H1 (REF)
1
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
3
CHEM-MILL LINE
3
CHEM-MILL LINE
1
.023 (REF)
.040 (REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
.015 (REF)
.015 (REF)
.040 (REF)
CUTOUT AS SHOWN
1
CHEM-MILL LINE
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
.020 (REF)
PHOTO BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 3
5
2
CHEM-MILL LINE
Y54.000 (REF)
TEMPLATE BUTT LINE
01/03
NAS 9-1100

CODE IDENT NO 26512

LDW280-18442

SH 4


Y81.000 (REF)
Z27.000 (REF)
70
30
A, 41 (REF)
CHEM-MILL LINE
1
LL LINE
.015 (REF)
.040 (REF)
.015 (REF)
CUTOUT AS SHOWN
58
2
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE

02/03 NAS 9-1100

MANUFACTURING O
UNLESS OTHERWISE
IF IS CHECKED ✓ APPLY

PART NUMB
AND ALL OTHER MARKINGS
IN REGION MARKED
ON BOTH SIDES IF NECES

FILLET AND INSIDE CORN
RADII TOLERANCES
.000R TO .062R ± .000
.062R TO .250R ± .015
OVER .250R ± .000

DEPTH SHOWN FOR TAPP
HOLES IS FULL THDS. 2-3
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGT
SHOWN INCLUDES
2 IMPERFECT THREADS M

DO NOT CADMIUM PLATE
HOLES OR SURFACES MAR
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ±
PERMISSIBLE DUE TO CH
OF CUTTERS AT INSIDE
INTERSECTING SURFACES

DIAMETERS MARKED
MUST BE CONCENTRIC
FULL
READING

HOLES MUST BE KEPT F
CHROME PLATING SOLUT

ALL DIMENSIONS SHOW
AFTER CADMIUM PLATIN
THICKNESS OF PLATE
TO .0005 MAX MIN. TH
BE .0002 ON THREADED
NO ALLOWANCE FOR PL
HOLES

125 SURFACE ROUGH
INCLUDING REA
PER MIL STD-10

REMOVE ALL BURRS.
BREAK ALL EDGES .015

INSPECTION INFORMAT
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTAN
MARKED

SYMBOL DENOTES
TO BE MACHINED

UNLESS OTHERWISE S
TOLERANCE ON FLANG

LENGTHS OF AN, NAS
RIVETS SHORTER THA
NOT SPECIFIED.

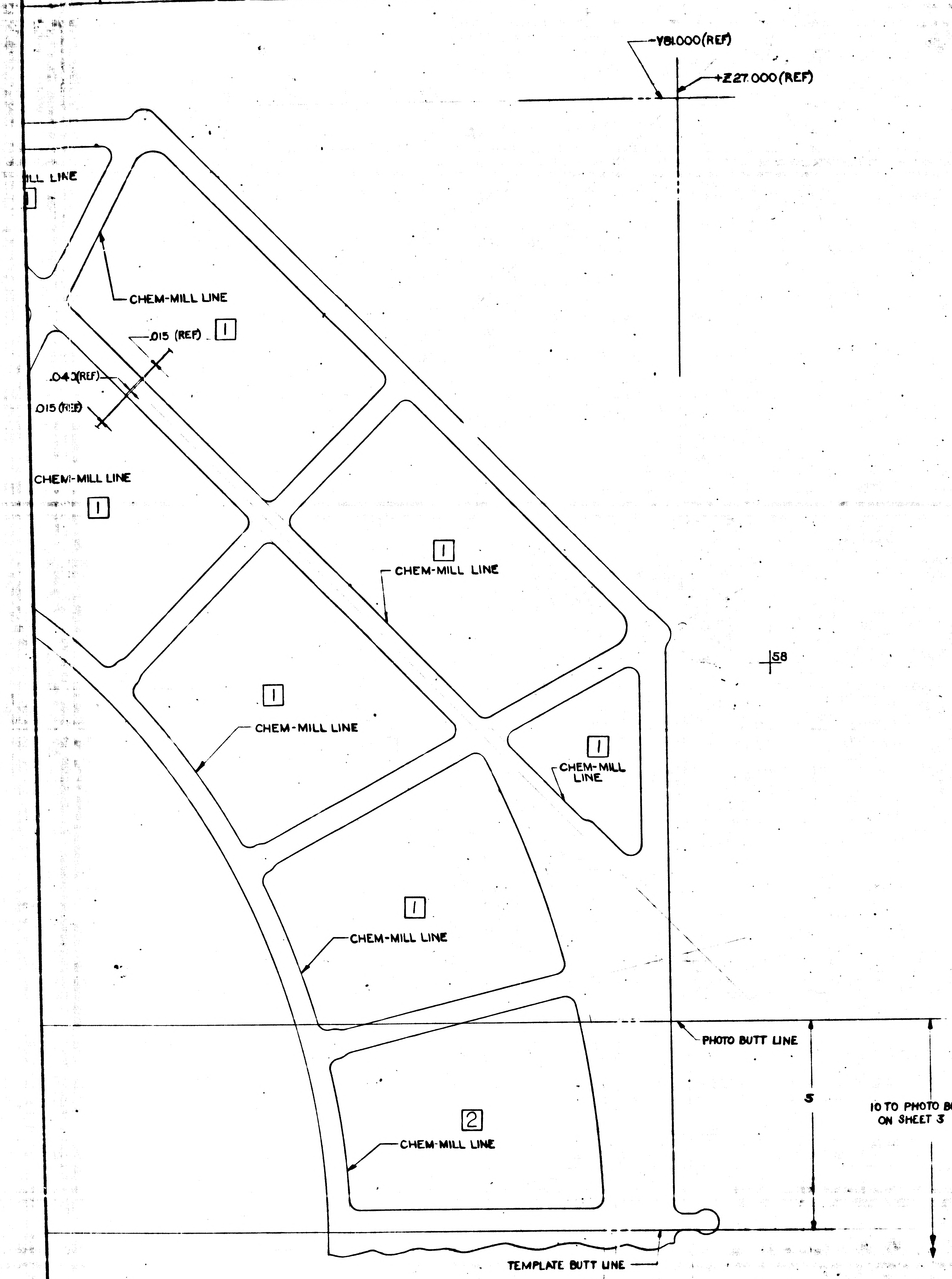
TOLERANCE ON LOFTE
DELINEATIONS IS

E IDENT NO 26512
LDW280-18442 SH 4

CODE IDENT 26512
LDW280-18442 SH 4

LM
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP., BETH
SIZE J
CODE IDENT NO 26512
LDW280
SCALE FULL

FOR PHOTO REPRODUCTION


4
3
2
Y81.000 (REF)
Z27.000 (REF)
70
30
ILL LINE
CHEM-MILL LINE
.015 (REF)
1
.040 (REF)
.015 (REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
58
1
CHEM-MILL LINE
2
CHEM-MILL LINE
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
4
3
2

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED ✓ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~[illegible] TO [illegible] ± [illegible]~~
~~[illegible] TO [illegible] ± [illegible]~~
~~OVER [illegible] ± [illegible]~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~[illegible] √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~[illegible] √ FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .005-.010~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL $\checkmark$ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

F

E

D

LDW280-18442 A

LDW280-18442 A

03/03

NAS 9-1100

CODE IDENT 26512
LDW280-18442 SH 4

L M
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-18442	A

SCALE FULL SHEET 4

FOR PHOTO REPRODUCTION

K3

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18442
EO NO. A1
CONTROL INFO NO. LDW280A8799

CREATE -11 WEB SAME AS LDW280-17141-13 EXCEPT AS SHN.
EFF FOR-11 LEM-4(34) THRU LEM-15(45) & LTA-3D(13)
N/A LDW280-23542 LEM-4(15) THRU LEM-15(45) & LTD-3D(13)
1 REQD PER MOD ~ ALL NOTES APPLY EXCEPT NOTE # 3

I & T (S)

(SAME)	(ADD) LDW280-18442-11		
LDW280-17141-13 SYMBOL	SYMBOL	THK AFTER CHEM-MILL	DEPTH OF CUT
1	1	.015 ± .002	.025 (REF)
2			
3			
4	2	.020 ± .002	.020 (REF)
5	3	$.023^{+.003}_{-.002}$	.017 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18442-11 IS SIMILIAR TO LDW280-17141-13

-11 IDENTICAL TO LDW280-17141-13 REV A INCLUDING EO B(Leo/545) B2 (Leo 599), B3, B4,

*NEW DWG NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997

REASON FOR EO: TO IMPROVE QUALITY OF CHEM-MILL WEB

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	LM-15(45)
		LTA-3D(13)	

DRAWING CHANGE REQD: * REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8/18/67			-67	NM 8-19-67		9/21/67	9/22/67
	VDI							

PRIORITY C

DRAWING TITLE: WEB-DESCENT STAGE LOWER DECK LEFT HAND

DRAWING NO. LDW280-18442
EO NO. A1

8/25
ISSUED BY J. ANDERSEN / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 2

01 NAS 9-1100

01 NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280		EO NO. 696	
CONTROL INFO NO. LDW280A 8879			

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*, USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H. FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCDI 997		5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LMA(34) THRU	
		LM15(45)	8LTA-3D(13)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				—	NM		
✓		NOT REQD		DATE	8/21/67				8/23/67		8/24/67 8-28-67
REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 706
CONTROL INFO NO. LDW280A9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
LDW280-18424	SEE DWG	B1
-18425	↑	B1
-18426		B1
-18427		B1
-18428		B1
-18429		B1
-18430		B1
-18431		B1
-18432		B1
-18433		B1
-18434		B1
-18435		B1
-18436		B1
-18437		B1
-18438		B1
-18439		B1
-18441		B1
-18442		B1
LDW280-18443	↓	B1
LDW280-18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK, SCRAP)

APPROVED BY — DATE: 9/7/67 VDI; 9/7/67; SUPPORT; RELIAB. GROUP; GROUP LEADER 9/7/67; STRESS GROUP 9-7-67; LIAISON ENGRG; PROJ ENGRG 9/7/67; 9-7-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

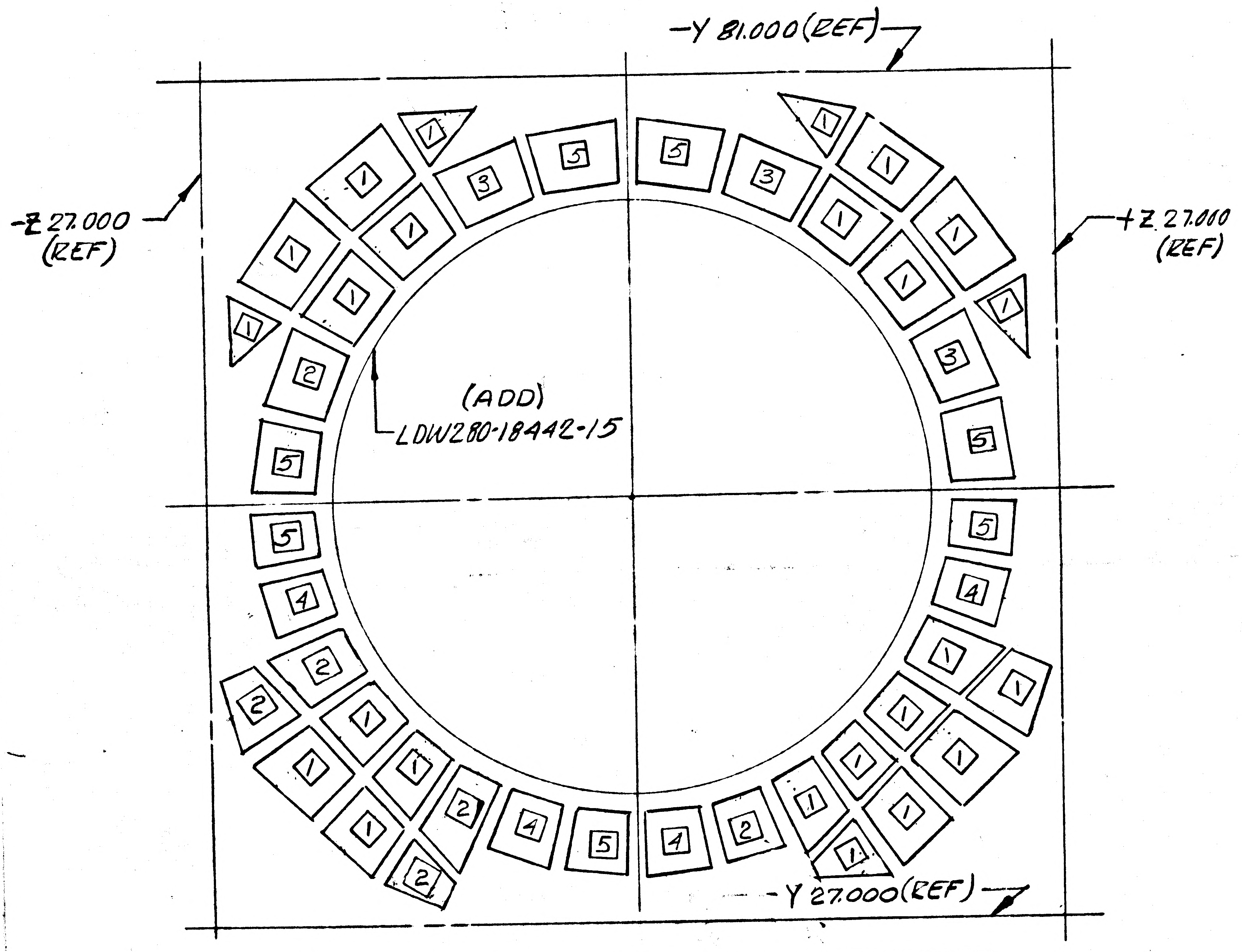
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-18442		EO NO.	B 3
CONTROL INFO NO. LDW280A9636			

ADD -15 IDENTICAL TO LDW280-18442-13 EXCEPT AS NOTED
-15 EFF LTA-3(13) LM-6(36) THRU LM-15(45) N/A LDW280-23542 1 REQD/MOD

REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) REQMTS FROM -13



LDW280-18442-15		
SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	.012 $^{+.003}_{-.002}$	.028 (REF)
2	.015 $^{+.003}_{-.002}$	.025 (REF)
3	.017 $^{+.003}_{-.002}$	.023 (REF)
4	.021 ±.003	.019 (REF)
5	.027 $^{+.004}_{.003}$	.013 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	LCD 2220

3

REASON FOR EO: REVISE MIN. WEB GAGE

DESCRIPTION OF EO: ADDED -15 REMOVED -13 EFF LTA-3(13) LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: JK 10/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JDS			P8T	WPM / WJH		UWB	
✓			-13	DATE	10/23/67			10/24/67	10/26/67		10/26/67	10-27-67
REVISE DWG	RECORD EO	REWORK	SCRAP	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: WEB-DESCENT STAGE LOWER DECK LEFT HAND

DRAWING NO.: LDW280-18442

EO NO.: B3

11/23 ISSUED BY J. ANDERSEN / V. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

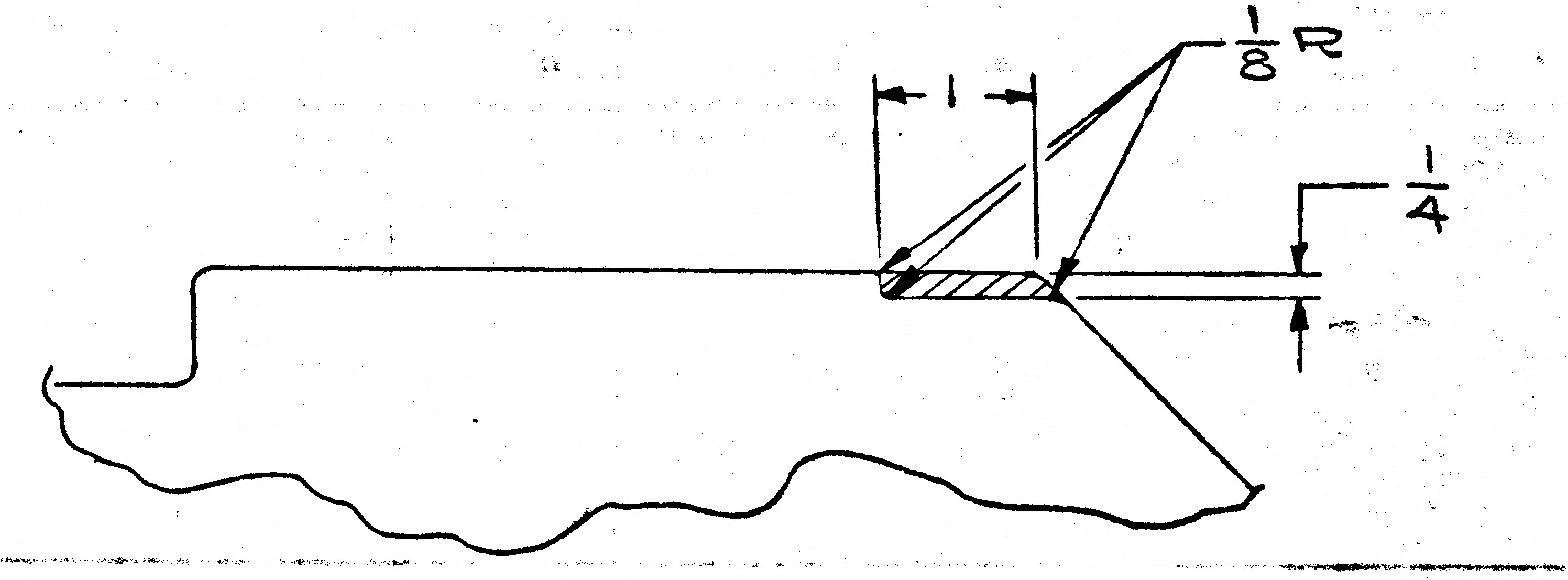
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18442
EO NO. B4
CONTROL INFO NO. LM-5-17896

TRIM -11 & -15 AS SHOWN



(DIM'S ARE FOR DRAFTING PURPOSES ONLY NOT TO BE INCORP ON DWG)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

RELEASED BY LIAISON (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
STRUCTURAL INTERFERENCE	TRIMMED -11 & -15	JK

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
		LM-4 (34) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	2/1/68			–	1-30-68	1-27-68	2/1/68	1/30/68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D/S ~ LOWER DECK ~ LEFT HAND	LDW280-18442	B4

ISSUED BY LIAISON Y. McGill / 662 X86755 SECTION YD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443	B5	
-18444	B4	
-18451	A2	
-18452	A1	
-18457	A2	
-18458	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/9/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1339

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1671
CONTROL INFO NO. LDW280B7728

FOR * ~
REMOVE ~ LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ·· ······· NEXT ASSY'S. NOTED Δ

PART NO.*	DASH NO.*	NEXT ASSY. Δ	DWG. TITLE	CHG. NO.
ok LDW280-17238	-13	LDW280-23542 ok	SEE DWG.	A6
	-19	-23543 ok		
	-15	-23544 ok		
-17239	-13 -17	-23542 ok		B4
		-23543 ok		
		-23544 ok		
-17240	-11 THRU -17	-23542 ✓		B5
		-23544 ok		
	-11 THRU -15, -17	-23543 ok		
-17241	-11 THRU -20	-23542 ✓		B5
	-12, -13, -16 THRU -21	-23543 ok		
	-11 THRU -14, -16, -17, -19, 20	-23544 ok		
-17242	-11 THRU -14	-23542 ✓		B5
	-11, -12, -14	-23543 ok		
	-11, -12, -14, -15	-23544 ok		
-17243	-17, -18	-23542 ✓		B6
	-18	-23543 ok		
	-11, -18, -19	-23544 ok		
ok -18137	-11, -13	-23541		B4
		-23543		
		-23544		
ok -18442	-15	-23542		B7
ok -18444	-13	-23544		B5
ok LDW280M17546	-1	-23542	SEE DWG.	C2
		-23543		
		LDW280-23544		
ok LDW280M17187	-5	LDW280-23544	SEE DWG	C1
LDW280-23542	-27-1	LDW280-54509	SEE DWG.	C9

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG. 54 PG. 1 & 8 & 9	(5)

REASON FOR EO: REDESIGN OF LOWER DECK FOR EXTENDED PROP. TANK

DESCRIPTION OF EO: FOR * REMOVED ~ LM-10(40) THRU LM-14(44) EFFECTIVITY FROM N/A Δ

GAEC EO RELEASE ✓ 9/18/9

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓	DATE	9-12-69			9/9/69	9/12/69		9/16/69
					VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED ABOVE (SEE DWG)
DRAWING NO.: LE0280
EO NO.: 1671

10-10-69
ISSUED BY GMGreen / John Lang x86047
SECTION VEH. DES. INT.
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18443 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23543	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-23543	LTA-3D(13)	1

PART NO. LDW280-18443-11 | GAEC SCH NO. 50-4

WORK PKG FUNCTION NO. 110 3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00		4.00		
REV	A	A	A		A		A		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. 207 | K(001) | MF-[illegible] A-9/19/[illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE ✓
CLASS I ENGRG CHANGE
LCD 1997

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY ROSARIO 8-13-67
LAYOUT BY PLANTE
CHECKED BY J Kartzman 9-15-67
~~GR LEADER~~
VEH DES INT J Studenski 9/16/67
STRUCT [illegible] 9/18/67
STRUCT [illegible] 9/18/67
WEIGHTS
RELIABILITY
PROJ ENGR W. Birch 9/18
REL GROUP [illegible] 9/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE
LOWER DECK ~ FORWARD

SIZE B | CODE IDENT NO. 26512 | LDW280-18443 | A

SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00, 1.10 2.00 & 3.00					✓	EO A1 LCD 1997	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO	LTA-3D(13) L 1-4(34) THRU LM-15(45)	NOT	REQD	R. ROSARIO 8-21-67 VK		
	2	1.10 & 3.00					✓	LEO 280-696 LCD 1997	ADDED NOTE #(*) REMOVED NOTES #(X,Y,Z)						
	3	1.10 & 3.00							REF EO A1 & A2 ALL NOTES NOT APPLICABLE, ADDED NOTES 1, 2 & 3						

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	MATERIAL
	A	—						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18443	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18443-11	S	WEB	AL ALY SH	QQ-A-250/12	7075-T6	.050 X 57 X 60	SEE	NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

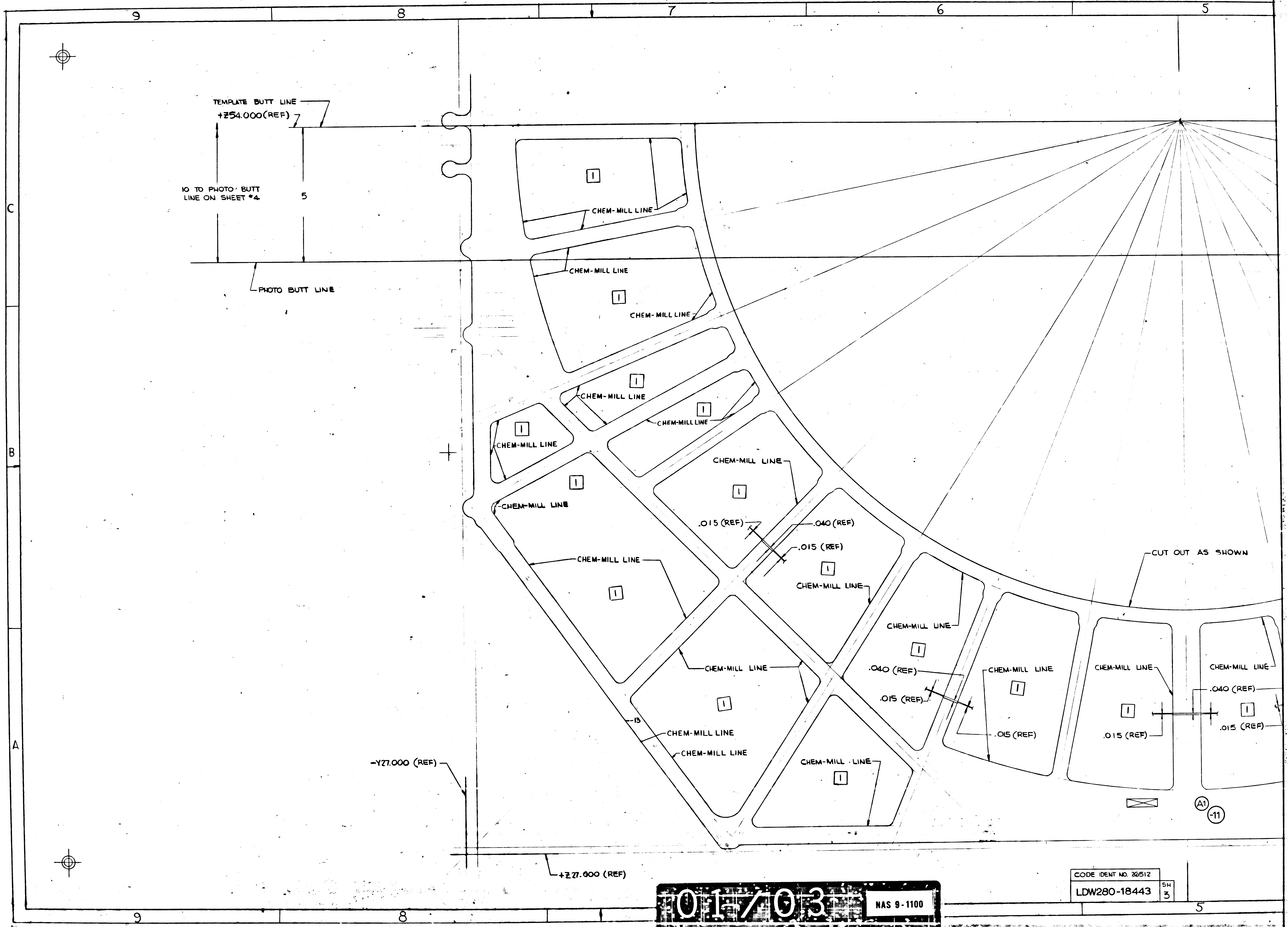
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18443	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
TEMPLATE BUTT LINE
+Z54.000 (REF)
10 TO PHOTO BUTT LINE ON SHEET #4
5
PHOTO BUTT LINE
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
CUT OUT AS SHOWN
13
-Y27.000 (REF)
+Z27.000 (REF)
A1
-11

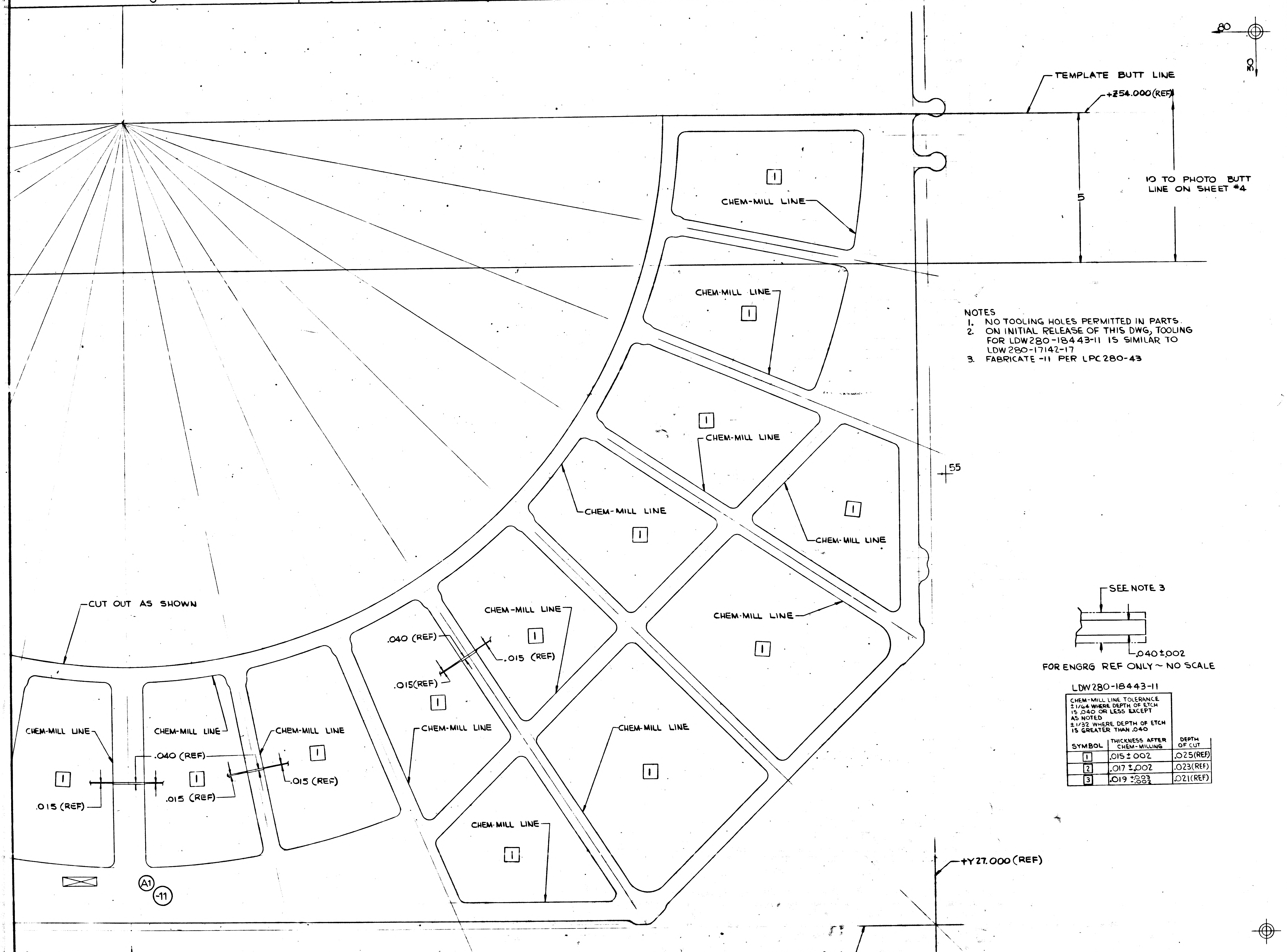
CODE IDENT NO. 26512

LDW280-18443

SH 3

01/03

NAS 9-1100


5
4
3
2
1
80
30
TEMPLATE BUTT LINE
+Z54.000(REF)
10 TO PHOTO BUTT LINE ON SHEET #4
5
55
CHEM-MILL LINE
1
CUT OUT AS SHOWN
.040 (REF)
.015 (REF)
.015(REF)
A1
-11
+Y27.000 (REF)
+Z27.000(REF)
SEE NOTE 3
.040±.002
FOR ENGRG REF ONLY ~ NO SCALE

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18443-11 IS SIMILAR TO LDW280-17142-17
3. FABRICATE -11 PER LPC280-43

LDW280-18443-11

CHEM-MILL LINE TOLERANCE
±1/64 WHERE DEPTH OF ETCH IS .040 OR LESS EXCEPT AS NOTED
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.015±.002	.025(REF)
2	.017±.002	.023(REF)
3	$.019^{+.003}_{-.002}$	.021(REF)

MANUFACTUR
UNLESS OTH
NOTES CHECKED ✓

RUBBER STAMP PAR
AND ALL OTHER MA
IN REGION MARKED
USE BOTH SIDES IN

FILLET AND INSIDE
RADII TOLERANCES
.016R TO .062R ±
.063R TO .250R ±
OVER .250R ±

DEPTH SHOWN FOR
HOLES IS FULL THD
BEYOND PERMISSIB

EXTERNAL THREAD
SHOWN INCLUDES
2 IMPERFECT THREA

DO NOT CADMIUM
HOLES OR SURFACES
WITH DOUBLE ASTE

MISMATCH STEP OF
PERMISSIBLE DUE T
OF CUTTERS AT INS
INTERSECTING SURF

DIAMETERS MARKED
MUST BE CONCENTR
READING

HOLES MUST BE KEP
CHROME PLATING SO

ALL DIMENSIONS SH
AFTER CADMIUM PLA
THICKNESS OF PLATI
TO .0005 MAX. MIN.
BE .0002 ON THREAD
NO ALLOWANCE FOR
HOLES

125 SURFACE ROU
INCLUDING F
PER MIL-STD

200 FOR ALL DR

REMOVE ALL BURRS.
BREAK ALL EDGES .0

INSPECTION INFORMA
MINIMUM PERMISSIB
AVERAGE EDGE DISTA
MARKED IS

SYMBOL DENOTES
TO BE MACHINED

UNLESS OTHERWISE
TOLERANCE ON FLAN

LENGTHS OF AN, NAS
RIVETS SHORTER THA
NOT SPECIFIED.

TOLERANCE ON LOFT
DELINEATIONS IS

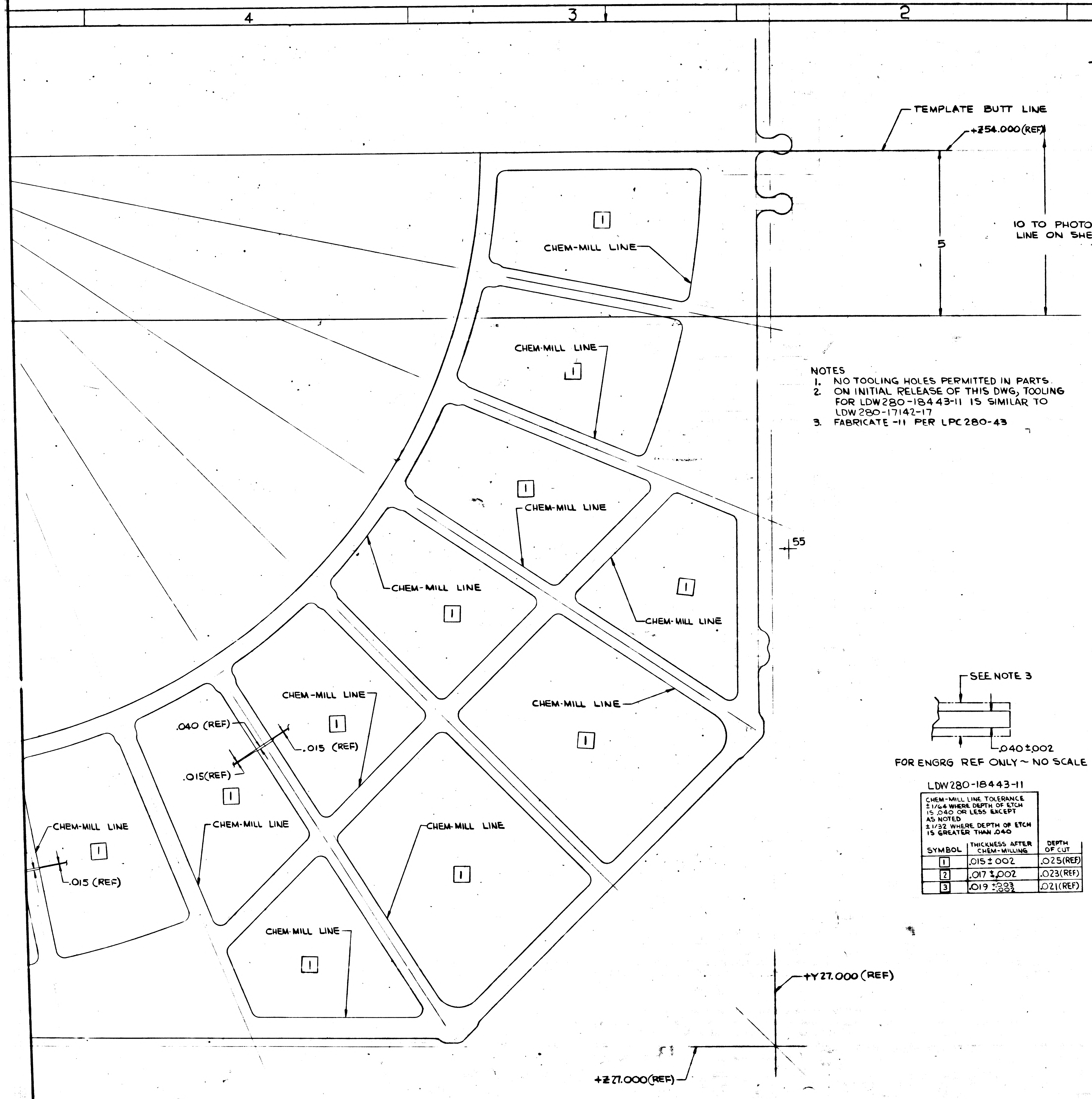
ODE IDENT NO. 26512
DW280-18443 SH 3

02/03 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHP

LM	SIZE J	CODE IDENT NO. 26512	LDW280-
MODEL OR END ITEM	SCALE FULL		

FOR PHOTO REPRODUCTI



NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18443-11 IS SIMILAR TO LDW280-17142-17
3. FABRICATE -11 PER LPC280-43

FOR ENGRG REF ONLY ~ NO SCALE

LDW280-18443-11

CHEM-MILL LINE TOLERANCE ±1/64 WHERE DEPTH OF ETCH IS .040 OR LESS EXCEPT AS NOTED
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.015±.002	.025(REF)
2	.017±.002	.023(REF)
3	.019 $^{+.003}_{-.002}$	.021(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (34 x 105)= 25.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.0 SQ. FT.

PRINT TRIM LINE

LDW280-18443 A

03/03

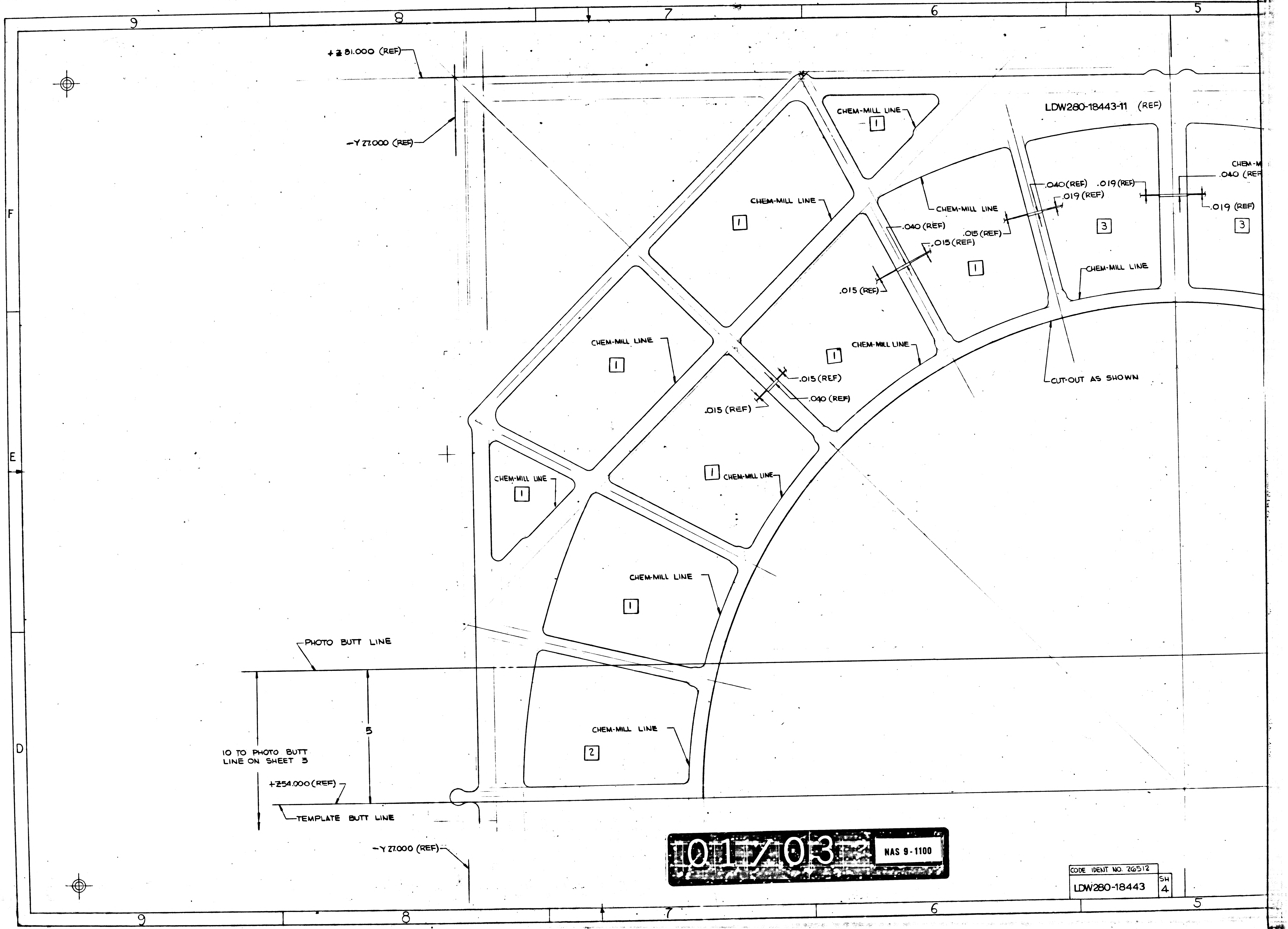
NAS 9-1100

LDW280-18443 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18443	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2



9
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D
+Z 81.000 (REF)
-Y 27.000 (REF)
LDW280-18443-11 (REF)
CHEM-MILL LINE
1
2
3
CHEM-M
.040 (REF)
.019 (REF)
.015 (REF)
CUT-OUT AS SHOWN
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
+Z54.000 (REF)
TEMPLATE BUTT LINE
-Y 27.000 (REF)

101/03

NAS 9-1100

CODE IDENT NO. 26512

LDW280-18443

SH 4

5
4
3
2
TR EG
1
-18443-11 (REF)
CHEM-MILL LINE
.019 (REF)
REF)
.040 (REF)
.019 (REF)
3
3
HEM-MILL LINE
CHEM-MILL LINE
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.015 (REF)
.015 (REF)
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CHEM-MILL LINE
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CHEM-MILL LINE
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2
CHEM-MILL LINE
AS SHOWN
+Z81.000 (REF)
+Y27.000 (REF)
80
30
55
PHOTO BUTT LINE
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10 TO PHOTO BUTT LINE ON SHEET 3
+Z54.000 (REF)
TEMPLATE BUTT LINE
+Y27.000 (REF)
02/03
NAS 9-1100
NT NO. 26512
30-18443
SH 4
MANUFACTURIN
UNLESS OTHERW
NOTES CHECKED ✓
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ND ALL OTHER MAR
N REGION MARKED
USE BOTH SIDES IF
FILLET AND INSIDE C
RADII TOLERANCES
.06R TO .062R ±
.063R TO .250R ±
OVER .250R ±
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BEYOND PERMISSIBLE
EXTERNAL THREAD L
SHOWN INCLUDES
2 IMPERFECT THREAD
DO NOT CADMIUM P
HOLES OR SURFACES
WITH DOUBLE ASTER
MISMATCH STEP OF
PERMISSIBLE DUE TO
OF CUTTERS AT INSI
INTERSECTING SURFA
DIAMETERS MARKED
MUST BE CONCENTRI
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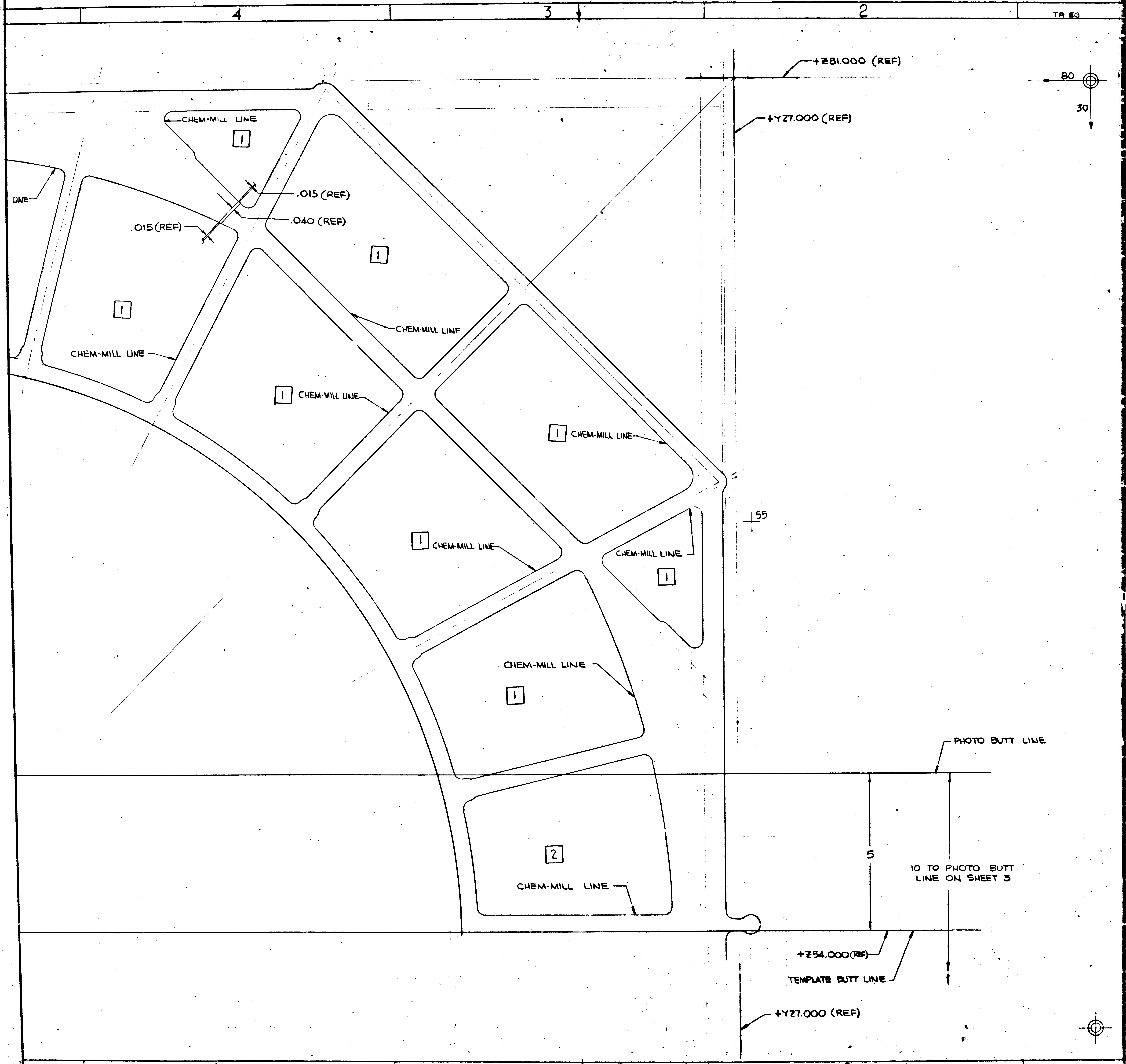
HOLES MUST BE KEP
CHROME PLATING S
ALL DIMENSIONS SH
AFTER CADMIUM PLA
THICKNESS OF PLATI
TO .0005 MAX. MIN.
BE .0002 ON THREAD
NO ALLOWANCE FOR
HOLES
SURFACE RO
INCLUDING
PER MIL-STD
125
250 FOR ALL OT
REMOVE ALL BURRS.
BREAK ALL EDGES
INSPECTION INFORM
MINIMUM PERMISSI
AVERAGE EDGE DIST
MARKED IS
SYMBOL DENOTE
TO BE MACHINED
UNLESS OTHERWISE
TOLERANCE ON FLA
LENGTHS OF AN, NA
RIVETS SHORTER TH
NOT SPECIFIED.
TOLERANCE ON LOF
DELINEATIONS IS
GRUMMAN AIRCRAFT ENGRG CORP., BETH
SIZE J
CODE IDENT NO. 26512
LDW280
LM
MODEL OR END ITEM
SCALE FULL
FOR PHOTO REPRODUC



4
3
2
TR EG
+Z81.000 (REF)
80
30
+Y27.000 (REF)
CHEM-MILL LINE
1
.015 (REF)
.040 (REF)
.015 (REF)
LINE
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CHEM-MILL LINE
CHEM-MILL LINE
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CHEM-MILL LINE
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CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
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PHOTO BUTT LINE
2
CHEM-MILL LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
+Z54.000 (REF)
TEMPLATE BUTT LINE
+Y27.000 (REF)
4
3
2

1

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 105)= 26.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.0 SQ. FT.

PRINT TRIM LINE

F

E

LDW280-18443 A

03/03 NAS 9-1100

D

LDW280-18443 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18443		A
MODEL OR END ITEM	SCALE FULL			SHEET 4.00	

1 FOR PHOTO REPRODUCTION K2

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-18443 | EO NO. A1
CONTROL INFO NO. LDW280A-8800

CREATE -11 WEB IDENTICAL TO LDW280-17142 -17WEB EXCEPT AS SHOWN
NOTE 3 NOT APPLICABLE I&T = S
EFF: N/A LDW280-23543 LTA-3D(13) LM4(34) THRU LM15(45) 1 REQ/MOD

(ADD) LDW280-18443-11 WEB (ADD)

LDW280-17142-17(REF)

	CHEM-MIL LINE TOL.... (SAME)		
	SYMBOL	THICKNESS AFTER C.M.	DEPTH OF CUT
1			
2	1	.015 ±.002	.025(REF)
3			
4	2	.017±.002	.023(REF)
5	3	.019 +.003 −.002	.021(REF)

ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18443-11 IS SIMILAR TO LDW280-17142-17

-11 IDENTICAL TO LDW280-17142-17 REV B INCLUDING EO C1 (LEO 545) C2 (LEO 599), C3

B

* NEW DWG - NO PARTS MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1997

5

REASON FOR EO: IMPROVE MANUFACTURING QUALITY OF CHEM-MILL PANELS.

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU LM15(45)	
		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
*		NOT REQ	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAP			JAB	NM			
DATE	8/18/67			8/18/67	8-14-67		8/21/67	8/22/67
	VDI							

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE - [redacted] LWR DECK.
DRAWING NO.: LDW280-18443
EO NO.: A1

8/25
ISSUED BY: PLANTE 1153 SECTION: VDI GROUP NO. 335 PL. 25

01S NAS 9-1100

C

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. NO.	TITLE
LDW280-18424	A2	WEB-D.S. R.H. END BHD
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y, & Z AS APPLICABLE)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCDL997	5

REASON FOR EO: FABRICATION PROCEDURE CHANGE

DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)

GAEC EO RELEASE: JK 8/28/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34) THRU	
		LM15(45)	& LTA-3D(13)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	NM			
DATE	8/21/67			—	8/23/67		8/24/67	8-28-67
	V.D.I.							

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LEO 280	EO NO.	706
CONTROL INFO NO.	LDW280A9086		

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

	DWG	TITLE	CHANGE
✓	LDW280-18424	SEE DWG	B1
✓	-18425		B1
✓	-18426		B1
✓	-18427		B1
✓	-18428		B1
✓	-18429		B1
✓	-18430		B1
✓	-18431		B1
✓	-18432		B1
✓	-18433		B1
✓	-18434		B1
✓	-18435		B1
✓	-18436		B1
✓	-18437		B1
✓	-18438		B1
✓	-18439		B1
✓	-18441		B1
✓	-18442		B1
✓	LDW280-18443		B1
	LDW280-18444	SEE DWG	B1

01
NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC EO RELEASE: C JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY								
DATE	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
9/7/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 706

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *

ENGINEERING ORDER

DWG. NO. LDW280-18443 | EO NO. B2
CONTROL INFO NO. LDW280A9629

ADD -13 IDENTICAL TO LDW280-17142-17 EXCEPT AS SHOWN
-13 EFF LTA-3(13), LM-6 (36) THRU LM-15(45)
ADD NOTE * FABRICATE -13 PER LPC280-43
N/A LDW280-23543 1 REQD EA/MOD I&T =(5)
REMOVED FROM -11 EFF LM-6 (36) THRU LM-15(45) & LTA-3 (13)

TOOLING FOR LDW280-18443-13
IS SIMILAR TO LDW280-17142-17

(WAS)	(IS)		
LDW280-17142-17	LDW280-18443-13		
SYMBOL	SYMBOL	THICKNESS AFTER CHEM-MILL	DEPTH OF CUT
[1] .007	[1]	.012 $^{+.003}_{-.002}$	.028 (REF)
[2] .011			
[3] .015	[2]	.015 $^{+.003}_{-.002}$	.025 (REF)
[4] .017	[3]	.017 $^{+.003}_{-.003}$	.023 (REF)
[5] .019	[4]	.019 $^{+.004}_{-.003}$	.021 (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 2220 3

REASON FOR EO: MIN. WEB GAGE

DESCRIPTION OF EO: ADDED -13 & NOTE *
REMOVED FROM -11 EFF LM-6(36) THRU LM-15(45); LTA3(13)

(R) GAEC EO RELEASE: JK 10/12/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6 (36) THRU	LM-15(45)
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	10/12/67					10/12/67	10-12-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: WEB-DESCENT STAGE-LOWER DECK FWD
DRAWING NO.: LDW280-18443
EO NO.: B2

10/20
ISSUED BY J. ANDERSEN/ J. STRAKOSCH x1153
10/12
SECTION VDI
GROUP NO. 335 PL 25

01

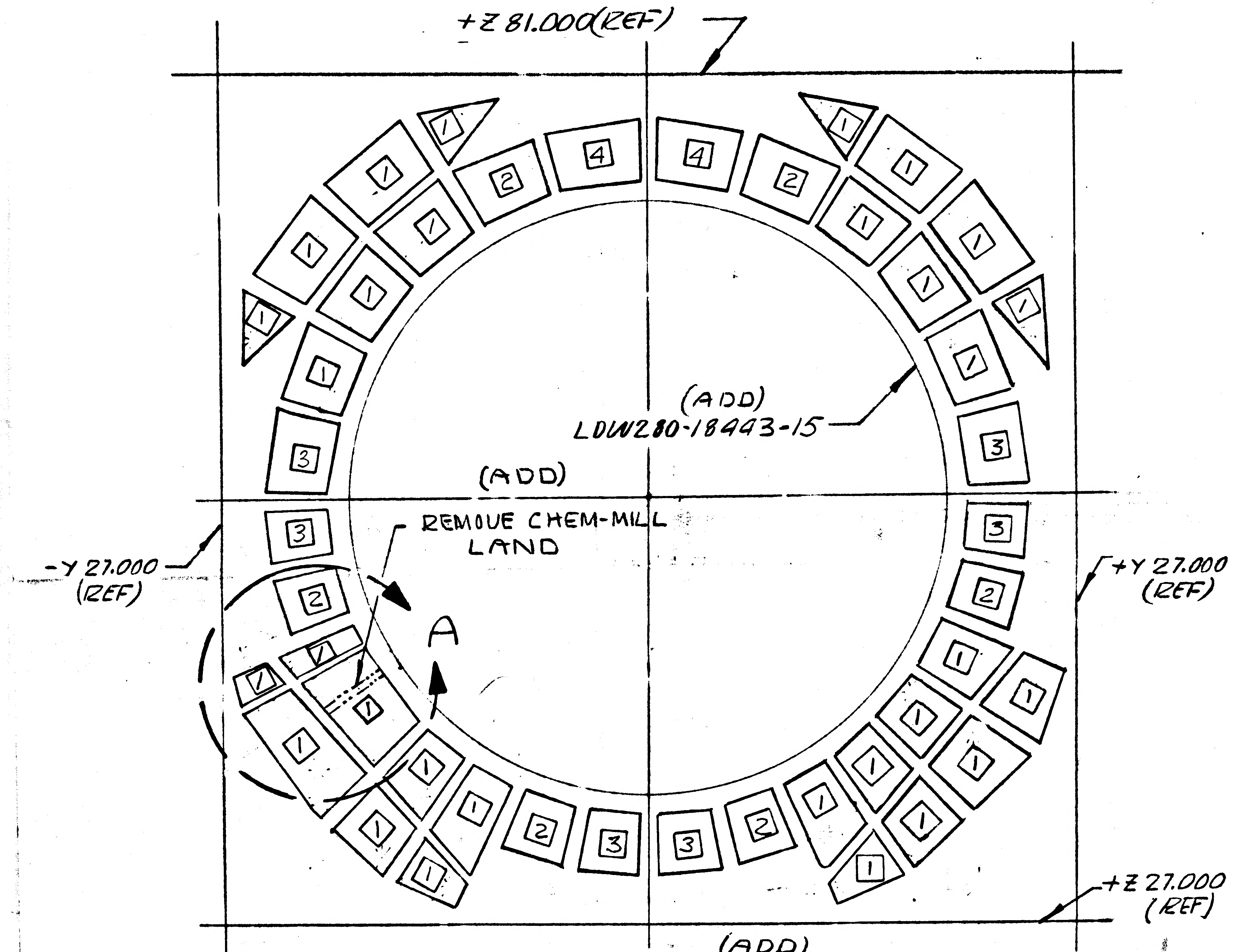
NAS 9-1100

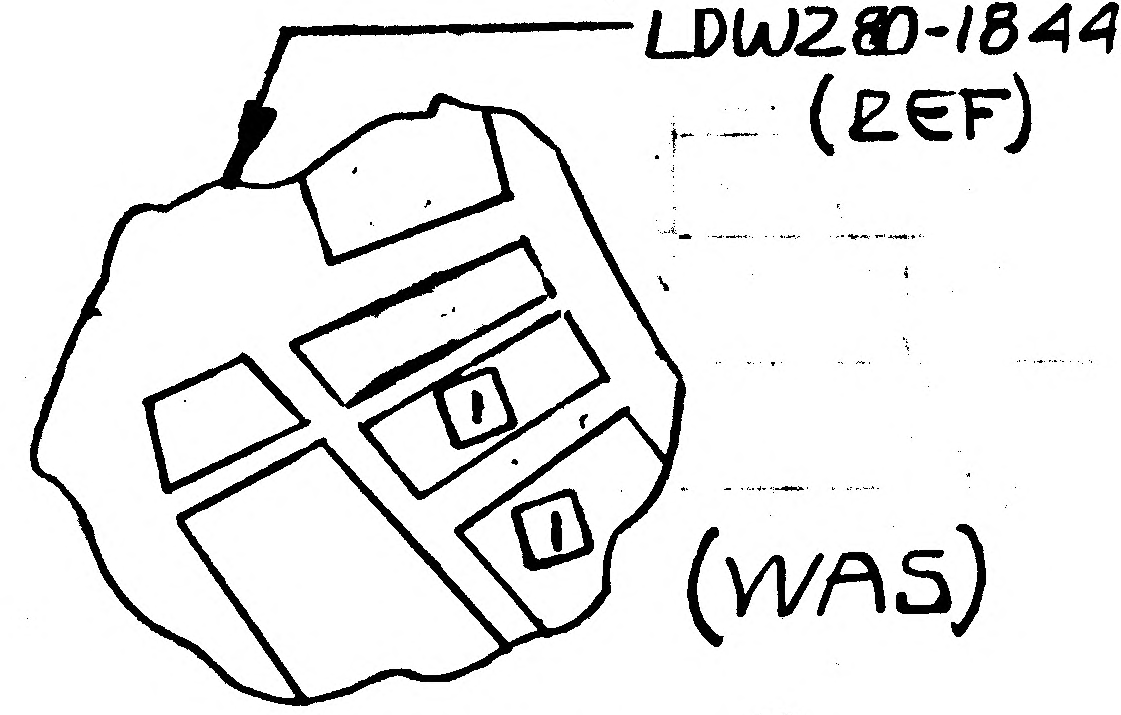
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18443		EO NO.	B3
CONTROL INFO NO. LDW280A9666			

ADD-15 IDENTICAL TO LDW280-18443-13 EXCEPT AS NOTED
-15 EFF LTA-3(13) LM-6 (36) THRU LM-15 (45) N/A LDW280-23543 1 REQD/MOD
-REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) REQMTS FROM-13





DETAIL A

(ADD)

LDW280-18443-15		
SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	.012 $^{+.003}_{-.002}$	.028 (REF)
2	.015 $^{+.003}_{-.002}$	.025 (REF)
3	.017 $^{+.003}_{-.002}$	.023 (REF)
4	.021 $^{+.003}_{-.003}$	.019 (REF)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ✓	CL I ENGRG CHG ☐	LCD 2220		3

REASON FOR EO: REVISE MIN WEB GAGE

DESCRIPTION OF EO: ADDED -15 REMOVED LTA-3(13), LM-6(36) THRU LM-15(45) REQMTS FROM -13

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	
		LTA-3(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	10/25/67			10-25			10/26/67	10-27-67
✓			✓	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE LOWER DECK-FORWARD	LDW280-18443	B3

11/6
ISSUED BY J. ANDERSEN/J. STRAKOSCH J.L. X11.53 SECTION UDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444	B4	
-18451	A2	
-18452	A1	
-18457	A2	
-18458	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY C
DRAWING TITLE 1 SEE DWG
DRAWING NO. LEO 280
EO NO. 1339

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1664
CONTROL INFO NO. LDW280B776

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-23543

PART NO. ✱	CHANGE NO.	DWG. NOMENCLATURE
LDW280 - 18443-15	B6	SEE DWG
-18451-11	A3	↑
M17621-1	A5	
M17622-3	B5	
M17808-11	B2	
-17856-11,-13,-15	A4	
M17462-7	B4	↓
LDW280M17582-5	A6	SEE DWG

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 | PKG. 56 Pc 1 | (5)

REASON FOR EO: REDESIGN OF LOWER DECK FOR LARGER TANK

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF ✱ BY REMOVING LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: 8-21-9; JK 9/16/69

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
LM		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY: | DATE 8-19-69 | VDI | SUPPORT | RELIAB. GROUP | GROUP LEADER | STRESS GROUP | LIAISON ENGRG | PROJ ENGRG 8/19/69 | 9-16-69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1664

10-24-69
ISSUED BY R. BEHAN / P. THORJUSEN x87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18444 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23544	LTA-3D(13)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23544	LM-4(34)	1
PART NO. LDW280-18444-11		GAEC SCH NO. 50-4	

WORK PKG FUNCTION NO 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-11

GRUMMAN REL INFO A

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD -1997	

CONTRACT NO.	NAS 9-1100
DRAWN BY	H. DEUTSCH 8/14/67
LAYOUT BY	J. ANDERSON
CHECKED BY	J. BELL 9/18/67
~~GR. LEADER~~	
VEH DES INT	9/19/67
STRUCTURE	IRC W/14 9/19/67
STRUCTURE	
WEIGHTS	
PROJ ENGR	9/19
REL GROUP	

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE
LOWER DECK - AFT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18444	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10 2.00, 3.00 4.00.				✓		EO A1 LCD-1997	EO A1: INITIAL DWG RELEASE. PARTS MADE PER EO	LM-4(34) THRU LTA-15(45 LTA-3D(13)	NOT	REQ'D	H. DEUTSCH 8-31-67		
	2	1.10					✓	LEO 280-696 LCD 1997	ADDED NOTE #(*). REMOVED NOTE #(X,Y,Z)						
	3	1.10 3.00					✓	LCD 1997	REF EO A1 & EO A2 (LEO 280-696) ALL NOTES NOT APPLICABLE. ADDED NOTES #1, 2 & 3.					4/19	

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS						
A	—	9/19/67									

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18444	A
SCALE NONE		SHEET 1.10	

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18444-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 X 57 X 60	SEE NOTE 3		5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18444	A

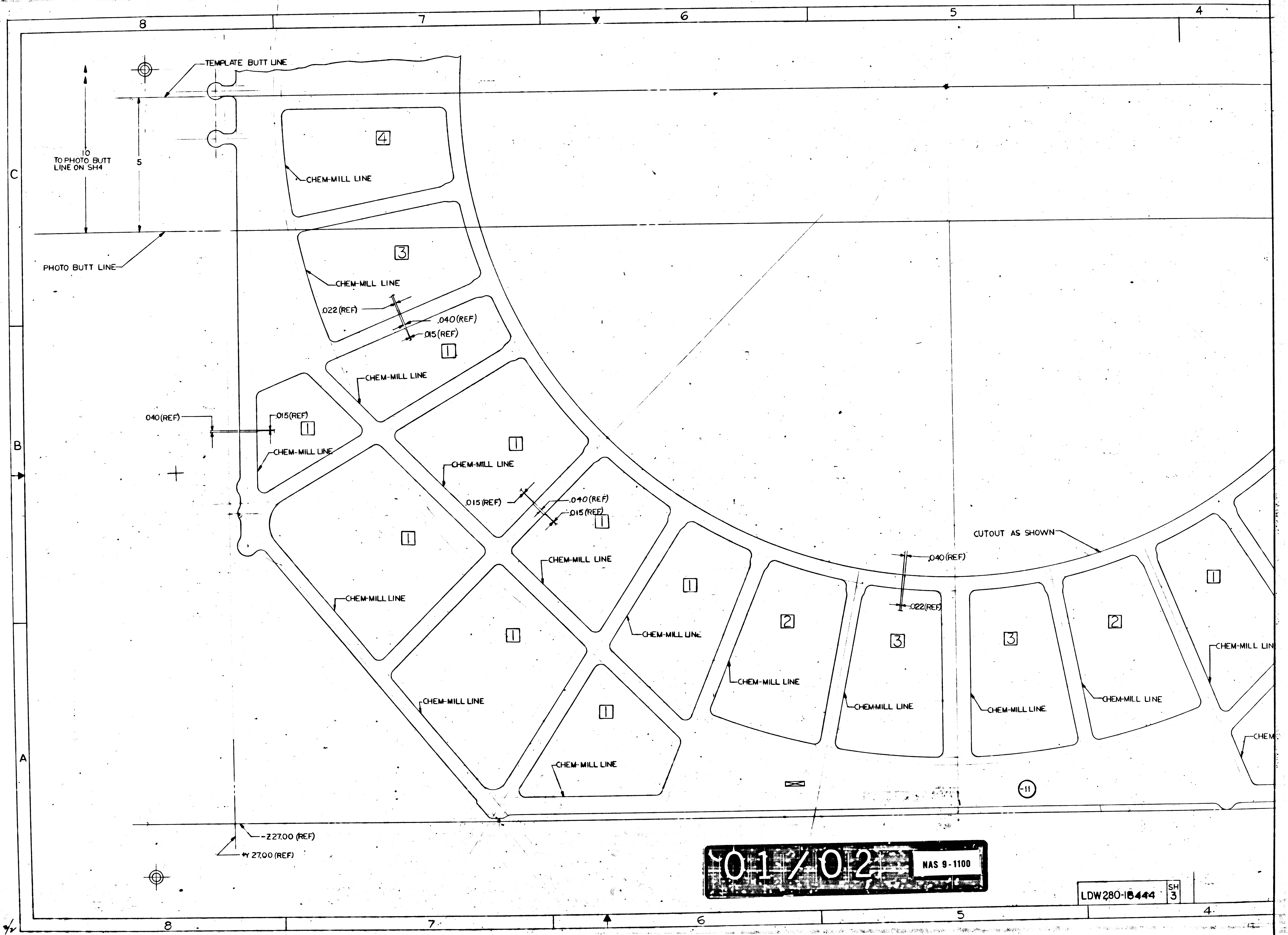
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

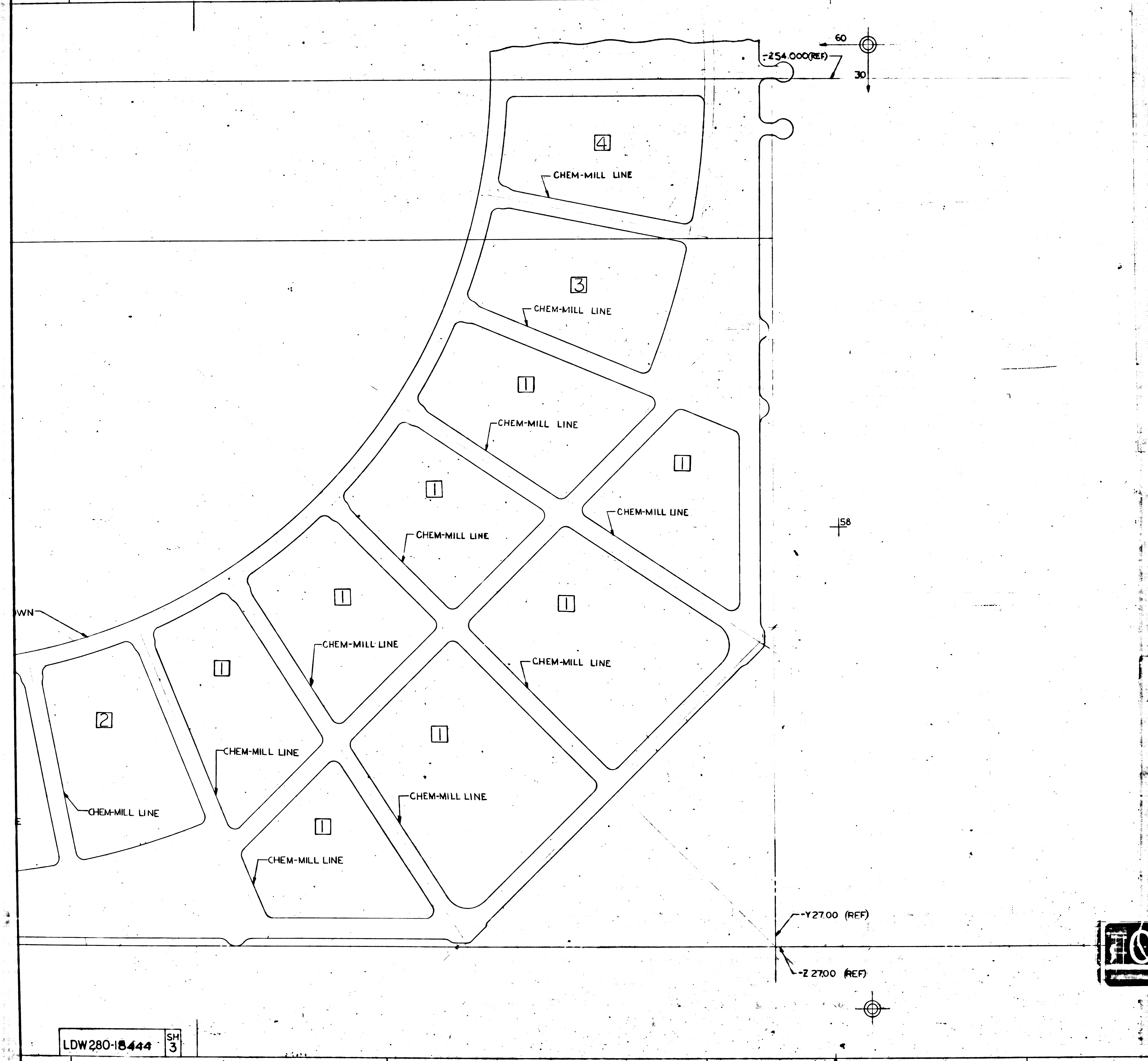
NAS 9-1100



8
7
6
5
4
C
B
A
TEMPLATE BUTT LINE
10
TO PHOTO BUTT
LINE ON SH4
5
PHOTO BUTT LINE
4
CHEM-MILL LINE
3
CHEM-MILL LINE
.022 (REF)
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
.040 (REF)
.015 (REF)
1
CHEM-MILL LINE
1
CHEM-MILL LINE
.015 (REF)
.040 (REF)
.015 (REF)
1
1
CHEM-MILL LINE
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
CUTOUT AS SHOWN
.040 (REF)
.022 (REF)
2
CHEM-MILL LINE
3
CHEM-MILL LINE
3
CHEM-MILL LINE
2
CHEM-MILL LINE
1
CHEM-MILL LIN
CHEM
-11
-Z 27.00 (REF)
+Y 27.00 (REF)

01/02 NAS 9-1100

LDW280-18444 SH 3


GEOM EG TF
60
30
-254.000(REF)
4
CHEM-MILL LINE
3
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
2
CHEM-MILL LINE
1
CHEM-MILL LINE
WN
58
-Y27.00 (REF)
-Z 27.00 (REF)

NOTES:

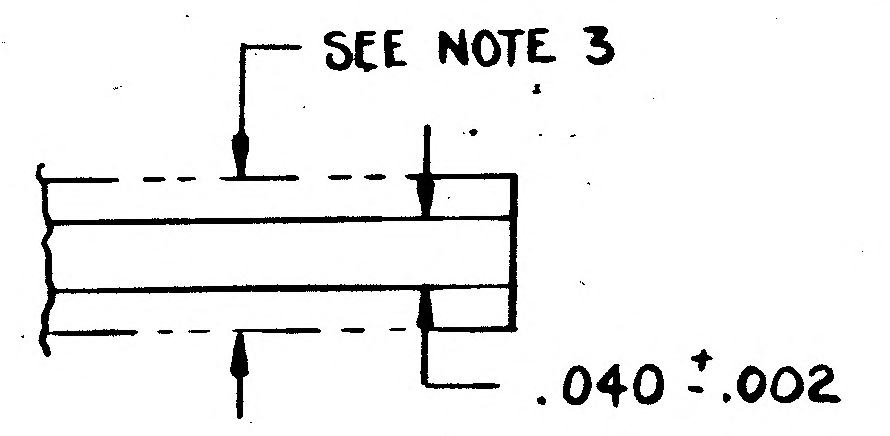
1. NO TOOLING HOLES PERMITTED IN PART.
2. ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18444-11 IS SIMILIAR TO LDW280-17143-17.
3. FABRICATE LDW280-18444-11 PER LPC 280-43.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⌧ ~~[illegible]~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 82

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 93)= 23 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6 SQ. FT.

PRINT TRIM LINE


SEE NOTE 3
.040 ± .002

FOR ENG REF ONLY - NO SCALE

LDW280-18444-11

CHEM-MILL LINE TOLERANCE
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.015 ± .002	.025 (REF)
2	.018 ± .002	.022 (REF)
3	.022 +.003 -.002	.018 (REF)
4	.025 +.003 -.003	.015 (REF)

02/02

NAS 9-1100

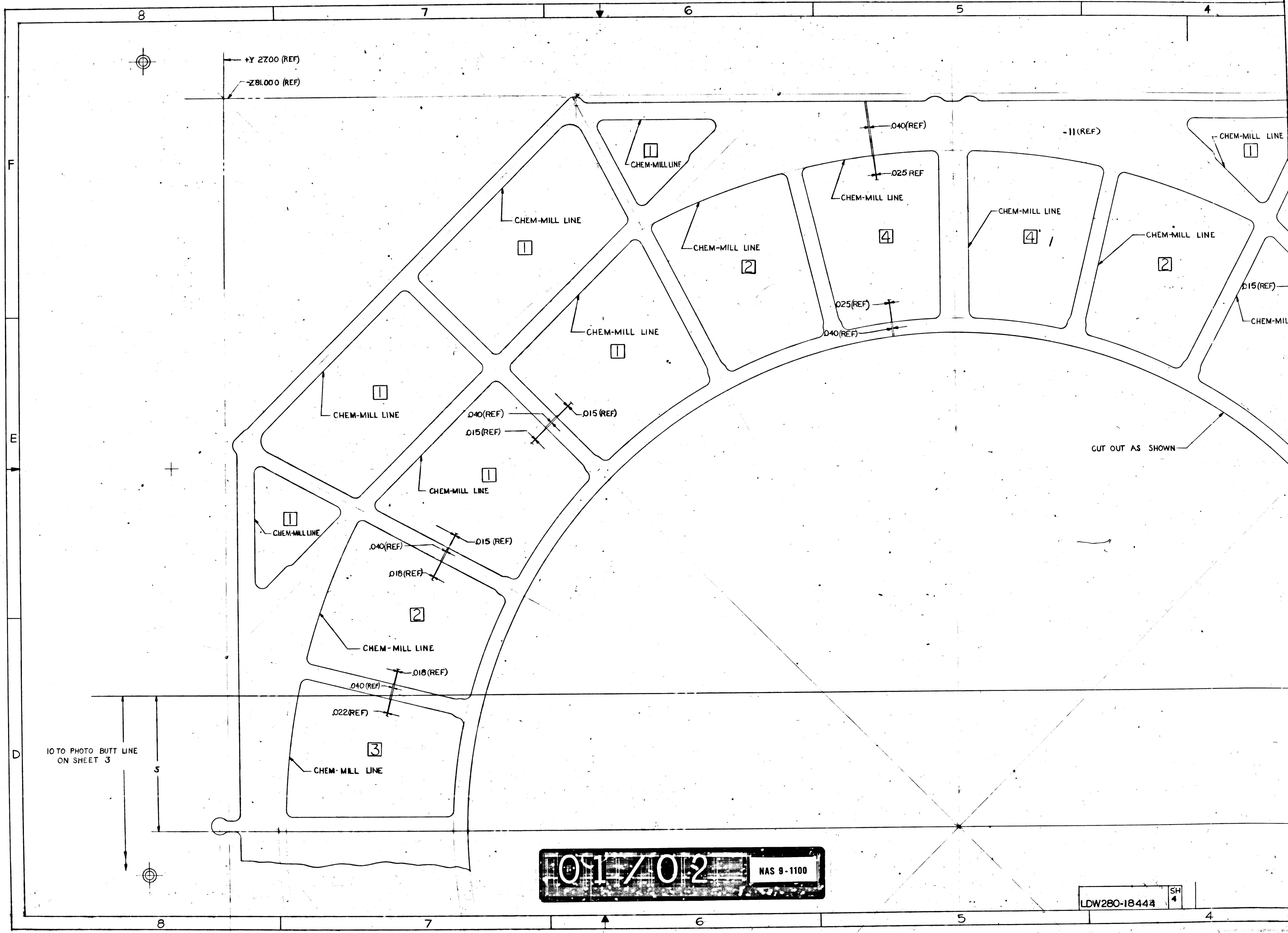
LDW280-18444 A

LDW280-18444 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18444	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

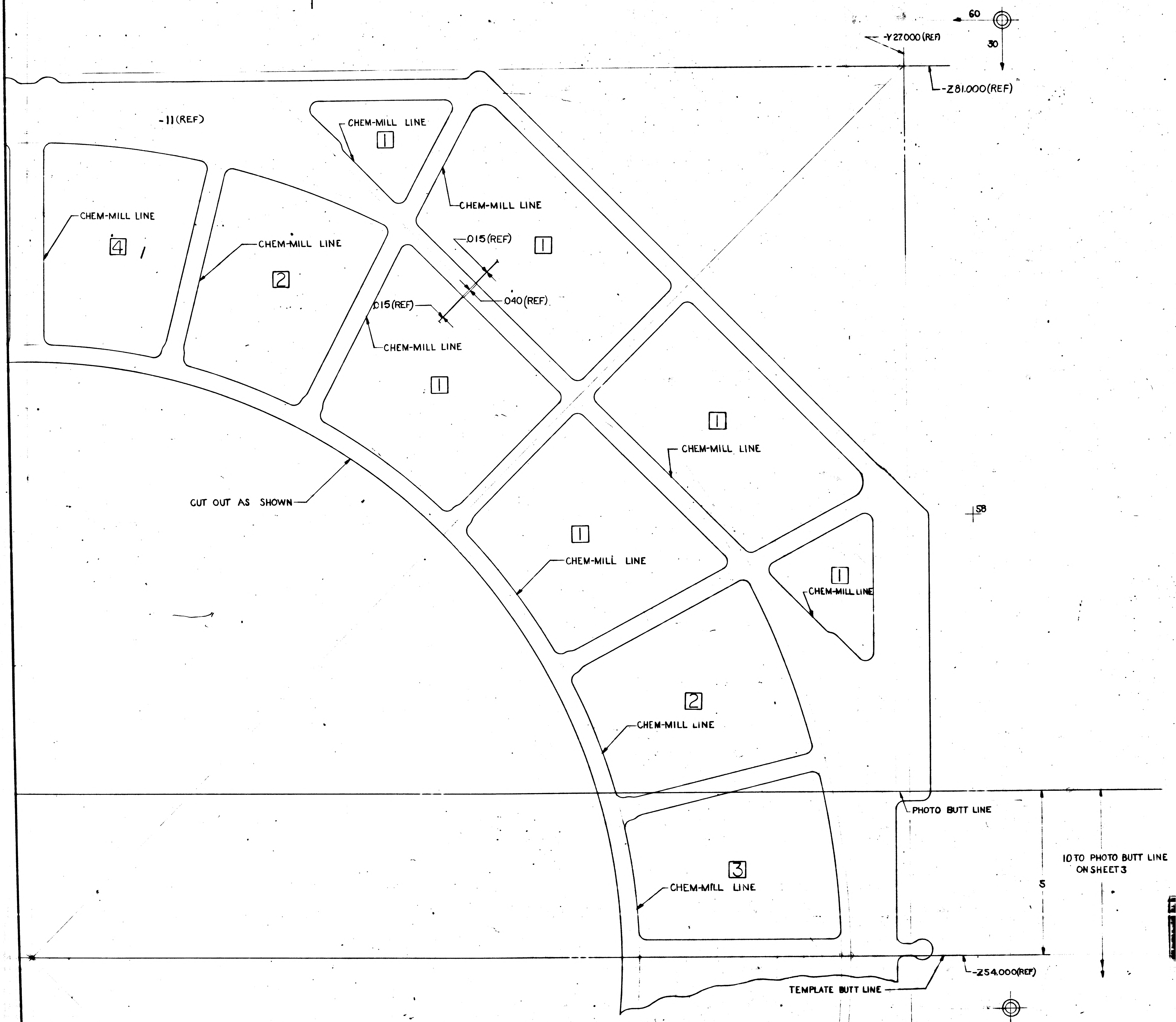
FOR PHOTO REPRODUCTION 2FR K2

LDW280-18444 SH 3


8
7
6
5
4
F
E
D
+Y 27.00 (REF)
Z81.000 (REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
2
CHEM-MILL LINE
4
.040(REF)
.025 REF
-11(REF)
.025(REF)
.040(REF)
.040(REF)
.015(REF)
.015 (REF)
.015 (REF)
.040(REF)
.018(REF)
.018(REF)
.040(REF)
.022(REF)
3
CHEM-MILL LINE
CUT OUT AS SHOWN
.015(REF)
10 TO PHOTO BUTT LINE ON SHEET 3
5
LDW280-18444
SH 4

01/02

NAS 9-1100



60
30
-Y27.000 (REF)
-Z81.000 (REF)
-11 (REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
4
CHEM-MILL LINE
2
.015 (REF)
.040 (REF)
.015 (REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
CUT OUT AS SHOWN
1
CHEM-MILL LINE
1
CHEM-MILL LINE
58
2
CHEM-MILL LINE
PHOTO BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 3
5
3
CHEM-MILL LINE
-Z54.000 (REF)
TEMPLATE BUTT LINE

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X82

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X95)= 23.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6 SQ. FT.

PRINT TRIM LINE

LDW280-18444 A

LDW280-18444 A

02/02

NAS 9-1100

LDW280-18444	SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-18444	A
	SCALE FULL			SHEET 4.00

FOR PHOTO REPRODUCTION K2 2FR

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-18444 | EO NO. A1
CONTROL INFO NO. LDW280A8801

CREATE -11 WEB SAME AS LDW280-17143-17 EXCEPT AS SH'N.
EFF FOR -11 LEM-4(34) THRU LEM-15(45) & LTA-3D (13)
N/A LDW280-23544 LEM-4(15) THRU LEM-15(45) & LTD-3D(13)
1 REQD PER MOD — ALL NOTES APPLY EXCEPT NOTE #3

(SAME)	(ADD) LDW280-18444-11		
LDW280-17143-17 SYMBOL	SYMBOL	THK. AFTER CHEM-MILL	DEPTH OF CUT
$\boxed{1}$	$\boxed{1}$	$.015 \pm .002$	.025 (REF)
$\boxed{2}$			
$\boxed{3}$	$\boxed{2}$	$.018 \pm .002$	.022 (REF)
$\boxed{4}$	$\boxed{3}$	$.022^{+.003}_{-.002}$	.018 (REF)
$\boxed{5}$	$\boxed{4}$	$.025^{+.003}_{-.003}$	.015 (REF)

(ADD) NOTE
ON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18444-11 IS SIMILIAR TO LDW280-17143-17

-11 IDENTICAL TO LDW280-17143-17 REV A INCLUDING EO B_1(LEO 205), B_2 (LEO 545), B_3(LEO 599)

* NEW DWG NO PARTS MADE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1997 5

REASON FOR EO: TO IMPROVE QUALITY OF CHEM-MILL WEB

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 8/22/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM4(34) THRU LM-15(45)	
		LTA-3D(3)	

DRAWING CHANGE REQD: * REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	JaP				NM		WPB	
DATE	8/18/67 VDI			8/18/67	8-14-67		8/21/67	8/?/67

PRIORITY: C
DRAWING TITLE: WEB - DESCENT STAGE STAGE LOWER DECK - AFT
DRAWING NO. LDW280-18444
EO NO. A1

8/25
ISSUED BY J. ANDERSEN / J. STRAKOSCH X1153 SECTION UDI GROUP NO. 335 PL. 25

01 NAS 9-1100

Q1 NAS 9-1100

C

ENO 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 696
CONTROL INFO NO. LDW280A 8879

REVISE THE FOLLOWING DWGS. AS FOLLOWS

DELETE ALL NOTES EXCEPT NOTED NOTE.
(REF) NO TOOLING HOLES PERMITTED IN PARTS.

ADD NOTE * (*. USE NEXT AVAILABLE NOTE #)

NOTE * - FABRICATE WEB. PER LPC 280-43

DRAWING No	CHG. No.	TITLE
LDW280-18424	A2	WEB - D.S. R.H. END BI'D
" 18425	A2	" " L.H. " "
" 18426	A2	" " FWD " "
" 18427	A2	" " AFT " "
" 18428	A2	" " R.H. FWD BEAM
" 18429	A4	" " FWD ENG COMPT
" 18430	A2	" " L.H FWD BEAM
" 18431	A2	" " R.H AFT BEAM
" 18432	A3	" " AFT ENG COMPT
" 18433	A3	" " R.H AFT BEAM
" 18434	A3	" " R.H. FWD BEAM
" 18435	A2	" " R.H ENG COMPT
" 18436	A3	" " R.H AFT BEAM
" 18437	A3	" " L.H. FWD BEAM
" 18438	A5	" " L.H. ENG. COMPT
" 18439	A3	" " L.H. AFT BEAM
" 18441	A2	" " L.H. LWR DECK
" 18442	A2	" " FWD LWR DECK
" 18443	A2	" " AFT LWR DECK
" 18444	A2	" " R.H LWR DECK

REMOVED NOTE * X, Y, Z (X, Y & Z AS APPLICABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ✓	CL I ENGRG CHG ☐	LCDL997									5
REASON FOR EO: FABRICATION PROCEDURE CHANGE			DESCRIPTION OF EO: ADDED NOTE(*) REMOVED NOTE * (X, Y, Z)									GAEC EO RELEASE: JK 8/28/67
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY				NM		
				✓ REVISE DWG / RECORD EO	NOT REQD REWORK / SCRAP	DATE 8/21/67				8/23/67		8/24/67 / 8-28-67
LM		LM4(34) THRU				V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		LM15(45)	8LTA-3(13)	PRIORITY C	DRAWING TITLE: NOTED				DRAWING NO. LEO 280			EO NO. 696

8/25
ISSUED BY PLANTE 1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 706
CONTROL INFO NO. LDW280A 9086

ON ALL DASH NUMBERS* OF THE FOLLOWING DWGS HAVING "THICKNESS AFTER CHEM-MILLING" TOLERANCES OF .XXX ±.002, INCREASE TOLERANCE RANGE TO .XXX $^{+.003}_{-.002}$

DWG	TITLE	CHANGE
✓ LDW280-18424	SEE DWG	B1
✓ -18425		B1
✓ -18426		B1
✓ -18427		B1
✓ -18428		B1
✓ -18429		B1
✓ -18430		B1
✓ -18431		B1
✓ -18432		B1
✓ -18433		B1
✓ -18434		B1
✓ -18435		B1
✓ -18436		B1
✓ -18437		B1
✓ -18438		B1
✓ -18439		B1
✓ -18441		B1
✓ -18442		B1
✓ LDW280 -18443		B1
✓ LDW280 -18444	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1997 5

REASON FOR EO: TO FACILITATE MANUFACTURE

DESCRIPTION OF EO: ON * REVISED CHEM MILL TOLERANCE .XXX $^{+.003}_{-.002}$ (WAS) .015 ±.002

GAEC C EO RELEASE: JK 9/7/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	LTA-3D (13)
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	9/7/67	9/7/67			9/7/67	9-7-67		9/7/67	9-7-67
		VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 706

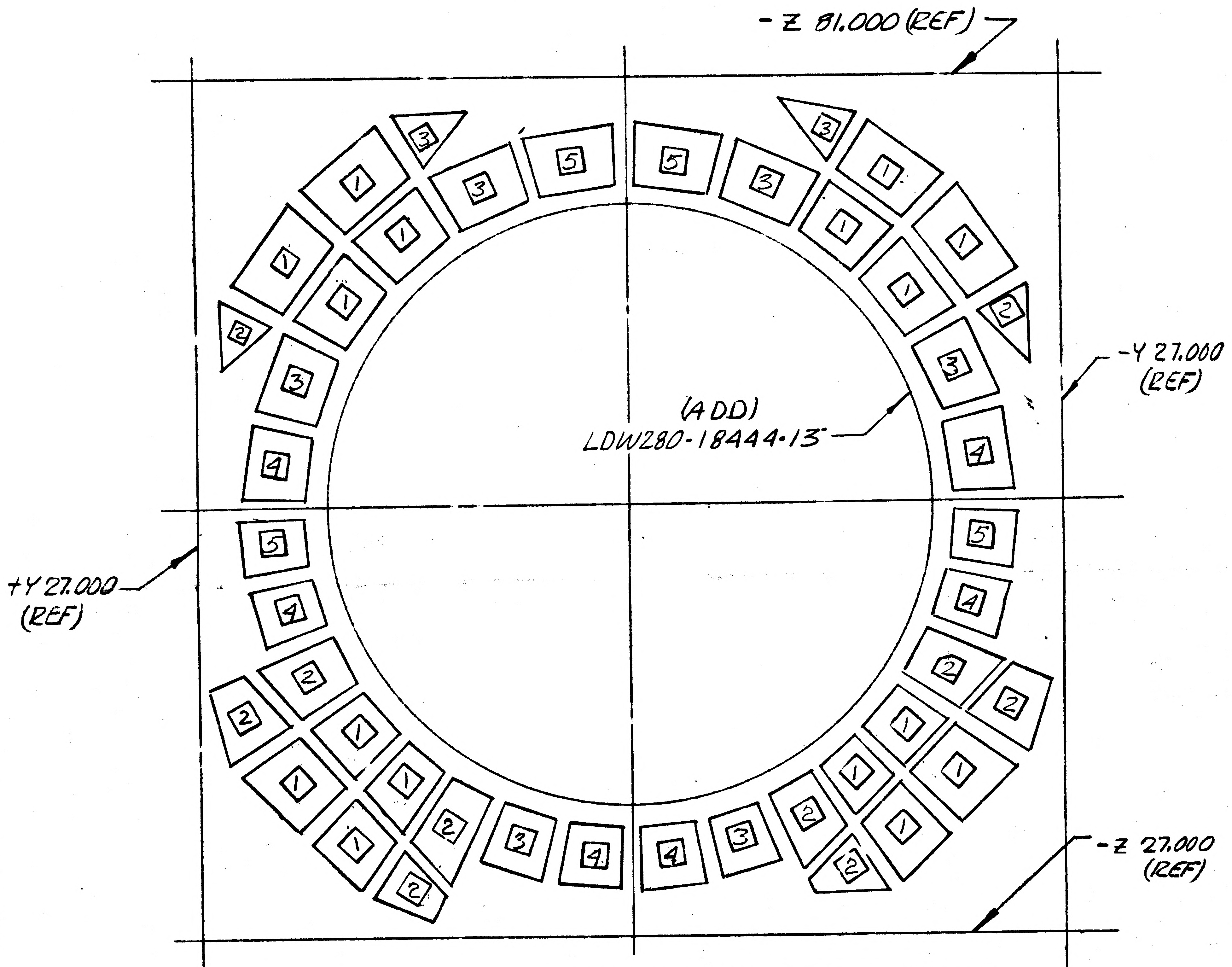
ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18444
EO NO. B2
CONTROL INFO NO. LDW280A9630

ADD-13 IDENTICAL TO LDW280-18444-11 EXCEPT AS SHOWN
-13 EFF LTA-3(13) LM-6 (36) THRU LM-15(45) N/A LDW280-23544-QTY
REQD 1 PER MOD
REMOVE LTA-3(13) LM-6(36) THRU LM-15(45) REQMTS FROM -11



LDW280-18444-13		
SYMBOL	THICKNESS AFTER C/M	DEPTH OF CUT
1	.012 $^{+.003}_{-.002}$	.028 (REF)
2	.015 $^{+.003}_{-.002}$	.025 (REF)
3	.019 $^{+.003}_{-.002}$	.021 (REF)
4	.025 ±.003	.015 (REF)
5	.028 $^{+.004}_{-.003}$	.012 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 2220

REASON FOR EO: REVISE MIN. WEB GAGE

DESCRIPTION OF EO: ADDED-13, 1 REQD, -REMOVE LTA-3(13) LM-6 (36) THRU LM-15(45) REQMTS FROM -11

GAEC EO RELEASE: 3 JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	
		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -11

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	10/26/67			10/25/67	10/26/67		10/26/67
13	VDI						10-28-67

PRIORITY: C

DRAWING TITLE: WEB-DESCENT STAGE LOWER DECK-AFT

DRAWING NO.: LDW280-18444

EO NO.: B2

10/30 ISSUED BY U. ANDERSEN / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 25

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1339
CONTROL INFO NO. LDW280B7435		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
↑ -18442 ✓	B6	
-18443 ✓	B5	↑
-18444 ✓	B4	
-18451	A2	
-18452	A1	
-18457	A2	
-18458	B1	
↓ -18459	A4	↓
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 35B7 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/15/69 2.3.69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1339

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1671
CONTROL INFO NO. LDW280B7728

FOR ✱ ~
REMOVE ~ LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ········ NEXT ASSY'S. NOTED △

PART NO.✱	DASH NO.✱	NEXT ASSY.△	DWG. TITLE	CHG. NO.
LDW280-17238	-13	✓LDW280-23542 ok	SEE DWG.	A6
	-19	-23543 ok		
	-15	-23544 ok		
-17239	-13 -17	-23542 ok		B4
		-23543 ok		
		-23544 ok		
-17240	-11 THRU -17	-23542 ✓		B5
		-23544 ok		
	-11 THRU -15, -17	-23543 ok		
-17241	-11 THRU -20	-23542 ✓		B5
	-12, -13, -16 THRU -21	-23543 ok		
	-11 THRU -14, -16, -17, -19, 20	-23544 ok		
-17242	-11 THRU -14	-23542 ✓		B5
	-11, -12, -14	-23543 ok		
	-11, -12, -14, -15	-23544 ok		
-17243	-17, -18	-23542 ✓		B6
	-18	-23543 ok		
	-11, -18, -19	-23544 ok		
-18137	-11, -13	-23541		B4
		-23543		
		-23544		
-18442	-15	-23542		B7
-18444	-13	-23544		B5
LDW280M17546	-1	-23542	SEE DWG.	C2
		-23543		
		LDW280 -23544		
LDW280M17187	-5	LDW280-23544	SEE DWG	C1
LDW280-23542	-27-1	LDW280-54509	SEE DWG.	C9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG.54 PG.1 & 8 & 9 (5)

REASON FOR EO: REDESIGN OF LOWER DECK FOR EXTENDED PROP. TANK

DESCRIPTION OF EO: FOR ✱ REMOVED ~ LM-10(40) THRU LM-14(44) EFFECTIVITY FROM N/A △

GAEC EO RELEASE: 9-18-69 9/18/9

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY: PJF
DATE: 9-16-69
VD1
SUPPORT
RELIAB. GROUP
GROUP LEADER: 9/9/69
STRESS GROUP: 9/12/69
LIAISON ENGRG
PROJ ENGRG: 9/16/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE (SEE DWG)
DRAWING NO.: LEO280
EO NO.: 1671

10-10-69
ISSUED BY: G.M. Green / John Lang x86047
SECTION: VEH. DES. INT.
GROUP NO. 335
PL 25

01 NAS 9-1100

LDW280-18445 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	D.V.T. (70)	1
LM	↕	LM-4 (34)	1
LFM 130	↕	LTA-8 (18)	1
LM	LDW280-23518	LTA-3 (13)	2

PART NO. LDW 280-18445-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	D.V.T. (70)	1
LM	LDW280-23518	LM-4 (34)	1
LFM 130	LDW280-23518	LTA-8 (18)	1

PART NO. LDW 280-18445-21 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	D.V.T. (70)	1 EA
LM	↕	LM-4 (34)	1 EA
LFM 130	↕	LTA-8 (18)	1 EA
LM	LDW280-23518	LTA-3 (13)	1 EA

PART NO. LDW 280-18445-17 & -19 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	D.V.T. (70)	2 EA
LM	↕	LM-4 (34)	2 EA
LFM 130	↕	LTA-8 (18)	2 EA
LM	LDW280-23518	LTA-3 (13)	2 EA

PART NO. LDW 280-18445-11, -12, -14, -15 & -16 | GAEC SCH NO. 50

WORK PACKAGE FUNCTION NO 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	~~4.00~~				
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B

LAST DASH NO. USED -21

GRUMMAN REL INFO A

PRIM NO. 207 | JK(001) | ME-1A 3/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

B ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2011 (CCA 668)

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	
LAYOUT BY	F. MADDEN
CHECKED BY	H. PALMER 11-29-67
GRP. LDR	P. THORJUSEN 11-29-67
VDI	J. Pusateri 11/29
STRUCT.	WB 11/29/67
STRUCT	CE 11/29
WEIGHTS	

PROJ ENGR J. Pusateri 11/29

REL GROUP J. Tagliavia 11-29-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

RAIL
DESCENT STAGE ~ QUAD IV
EQUIPMENT STOWAGE PALLET

SIZE B | CODE IDENT NO. 26512 | LDW280-18445 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 12/8/67

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

RETRACED SH 3.00 NO CHG. LAST REV "NC" (SH SIZE "E" WAS "J"). CANCELLED SH 4.00. FLD OF SH 4.00 NOW PART OF SH 3.00. HALF SCALE WAS FULL, ADDED SH 1.10. O. KOBYLETZKYJ 1-9-69.

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10, 3.00							INC EO-A1.	LTA-3			O. KOBYLETZKYJ 1-9-69		
	2	1.00, 1.10		LFM-130					INC LEO 280-977.	LTA-8					
	3	1.00, 1.10 2.00, 3.00		LFM-130 S					INC EO-A3.	LTA-8					
	4	1.00, 1.10		S					INC LEO 280-1004.	LM-4					
	5	1.00, 1.10						Ⓔ	INC LEO 280-1017	DV.T. (70)		H.D.			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18445	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18445-21	E		STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.080 × 8 × 32	T6	88	
	19			ZEE				.080 X 9 X 32			
	-17			STIFFENER				.080 X 8 X 32			
	-16			ANGLE				.080 X 3 X 37			
	-15			ANGLE				.080 X 3 X 37			
	-14			ANGLE				.080 X 3 X 37			
	-13			ANGLE				.080 X 3 X 37			
	-12			RAIL				.080 X 9 X 41			
	LDW280-18445-11	E		RAIL	AL. ALLOY SH	QQ-A-250/12	7075	.080 X 9 X 41	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

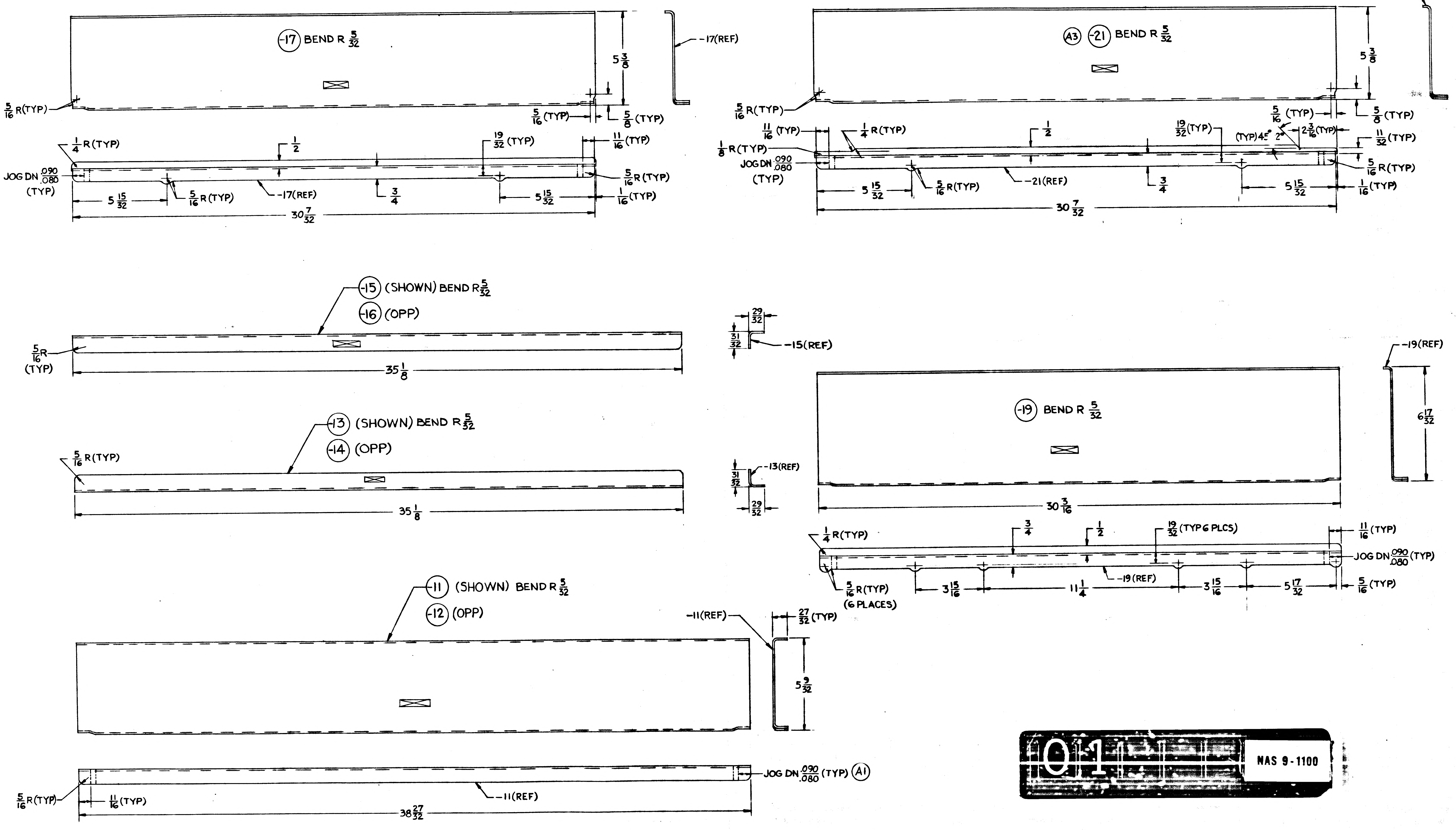
SIZE	CODE IDENT NO.		
B	26512	LDW280-18445	A④
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



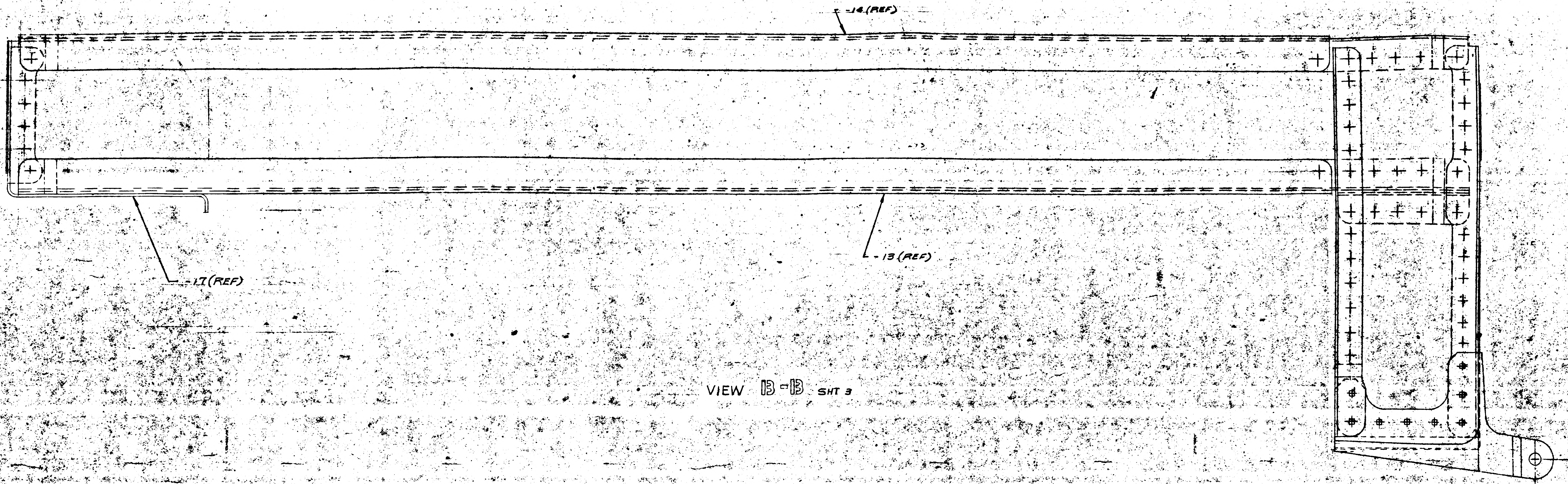
-17 BEND R 5/32
5 3/8
-17(REF)
5/16 R(TYP)
5/16 (TYP)
5/8 (TYP)
1/4 R(TYP)
1/2
19/32 (TYP)
11/16 (TYP)
JOG DN .090/.080 (TYP)
5/16 R(TYP)
-17(REF)
3/4
5 15/32
1/16 (TYP)
30 7/32
-21(REF)
A3 -21 BEND R 5/32
5 3/8
5/16 R(TYP)
5/16 (TYP)
5/8 (TYP)
11/16 (TYP)
1/4 R(TYP)
1/2
19/32 (TYP)
(TYP) 45° 2°
2 3/16 (TYP)
11/32 (TYP)
1/8 R(TYP)
JOG DN .090/.080 (TYP)
5/16 R(TYP)
-21(REF)
3/4
5 15/32
1/16 (TYP)
30 7/32
-15 (SHOWN) BEND R 5/32
-16 (OPP)
5/16 R (TYP)
35 1/8
29/32
31/32
-15(REF)
-13 (SHOWN) BEND R 5/32
-14 (OPP)
5/16 R(TYP)
35 1/8
-13(REF)
31/32
29/32
-19(REF)
-19 BEND R 5/32
6 17/32
30 3/16
1/4 R(TYP)
3/4
1/2
19/32 (TYP 6 PLCS)
11/16 (TYP)
JOG DN .090/.080 (TYP)
5/16 R(TYP) (6 PLACES)
3 15/16
11 1/4
-19(REF)
3 15/16
5 17/32
5/16 (TYP)
-11 (SHOWN) BEND R 5/32
-12 (OPP)
-11(REF)
27/32 (TYP)
5 9/32
5/16 R(TYP)
11/16 (TYP)
-11(REF)
JOG DN .090/.080 (TYP) A1
38 27/32

01 NAS 9-1100

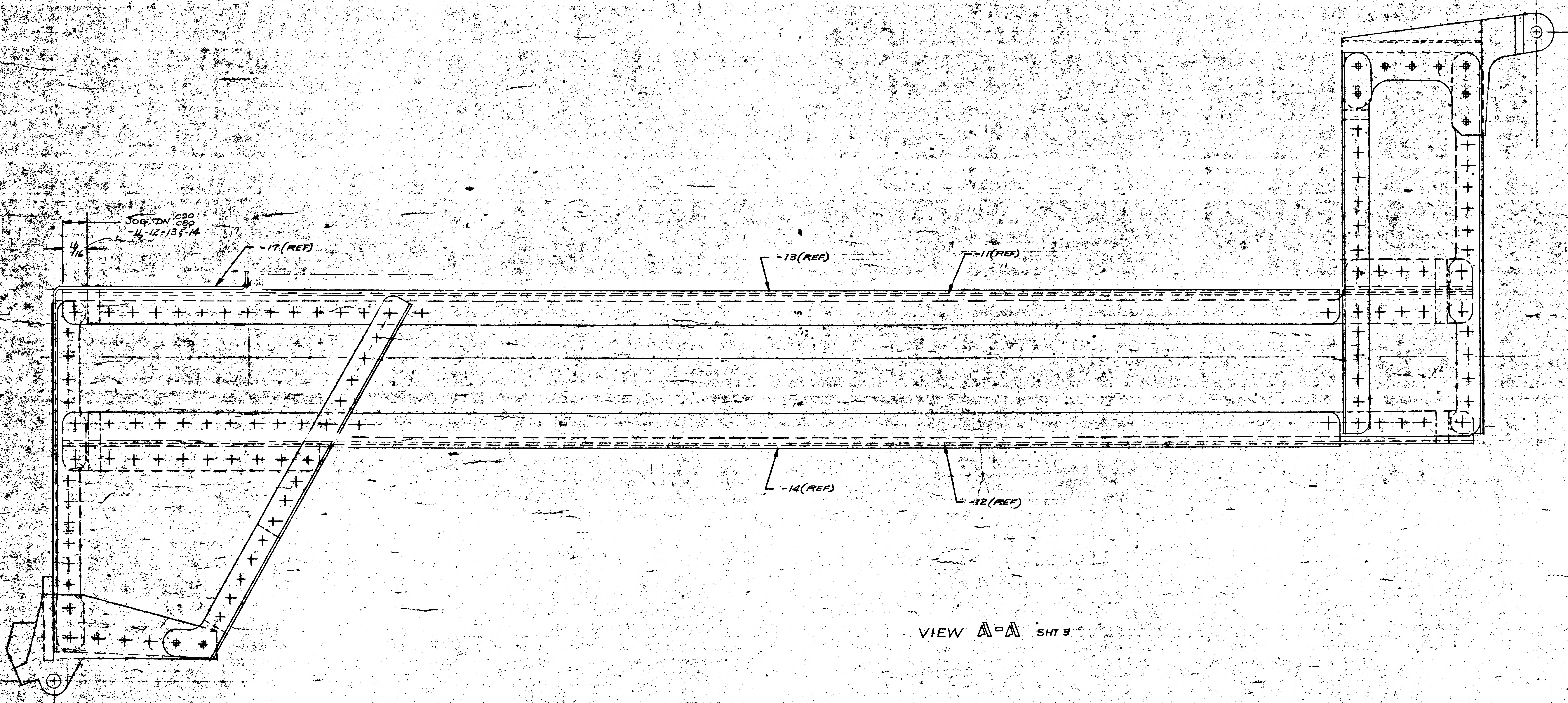
GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

LM MODEL | SIZE E | CODE IDENT NO. 26512 | LDW280-18445 | A
SCALE HALF | SHEET 3.00

SUPERSEDES LDW280-18445 1 NO CHG 1-9-69


-14 (REF)
-17 (REF)
-13 (REF)

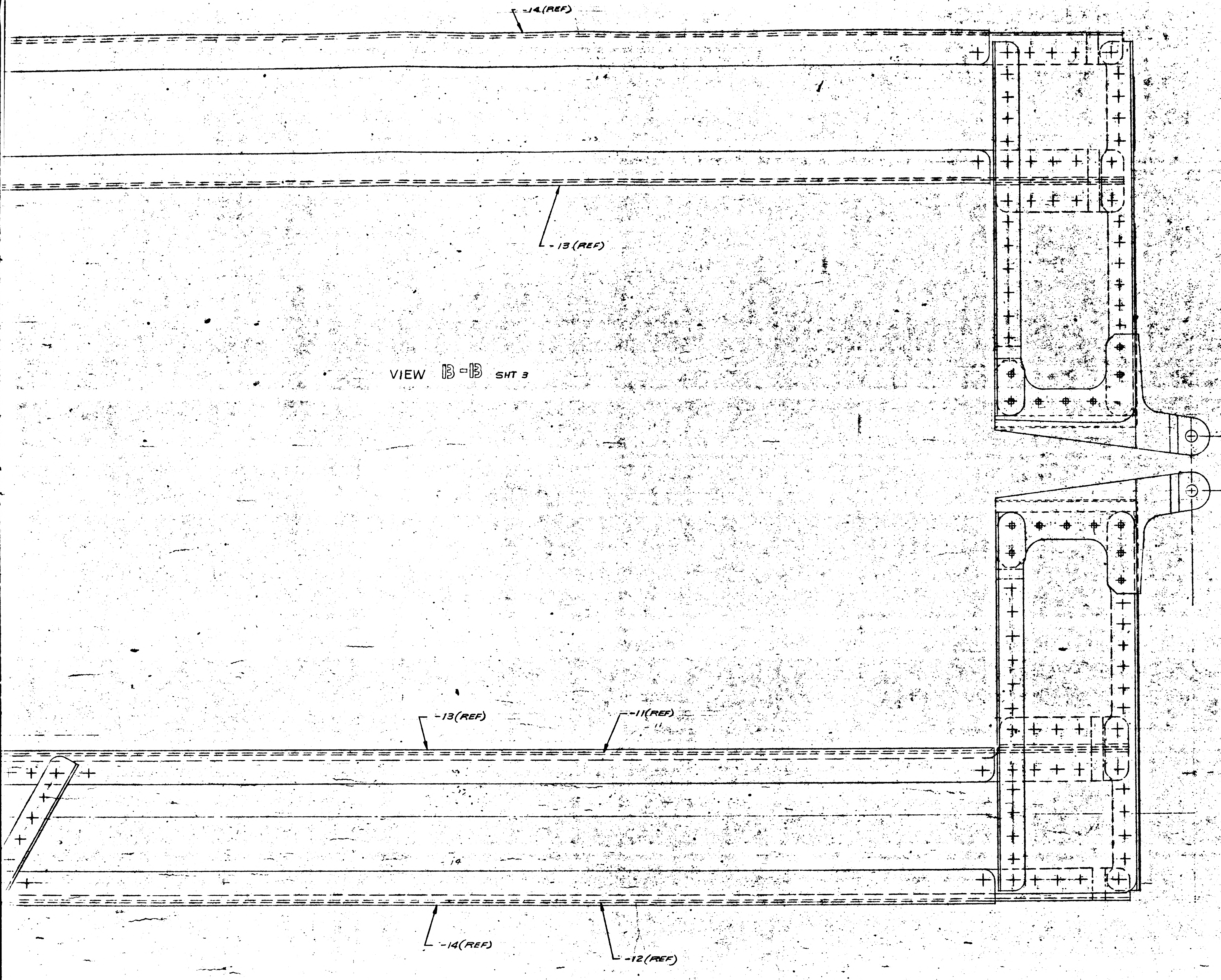
VIEW B-B SHT 3


JOG DN .090 .080
-11-12-13 & -14
1/16
-17 (REF)
-13 (REF)
-11 (REF)
-14 (REF)
-12 (REF)

VIEW A-A SHT 3

01/02

NAS 9-1100



VIEW A-A SHT 3

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

LDW280-18445

02/02 NAS 9-1100

LDW280-18445

LAYOUT RELEASE MAY BE REDRAWN
ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18445	
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

THIS IS AN ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 977
CONTROL INFO NO. LDW280B3263		

FOR ALL DASH NUMBERS ✻ ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING NO.	TITLE	CHANGE NO.
LDW280M17830	SEE DWG.	A2 ✓
M17831		A2 ✓
M17836		A6 ✓
M17853		A2 ✓
-18445		A2 ✓
-18446		A2
-18447		A1
-18448		A2
-18449		A1
-18450		A4
LDW280-18456	SEE DWG	A3

LFM

✻ USE APPLICABLE DASH NO'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1021-37 PKG. 3 (REV. A)

REASON FOR EO: UPDATE LTA-3 MESS BOX TO LM-5 -LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR ✻ ADDED LTA-8

GAEC EO RELEASE: (5) C JK 5/22/68

MODEL	EFFECTIVITY: EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQ'D SCRAP

APPROVED BY								
DATE	5/11/68			5-11-68	5/14/68		5/14/68	5-20-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

0 1

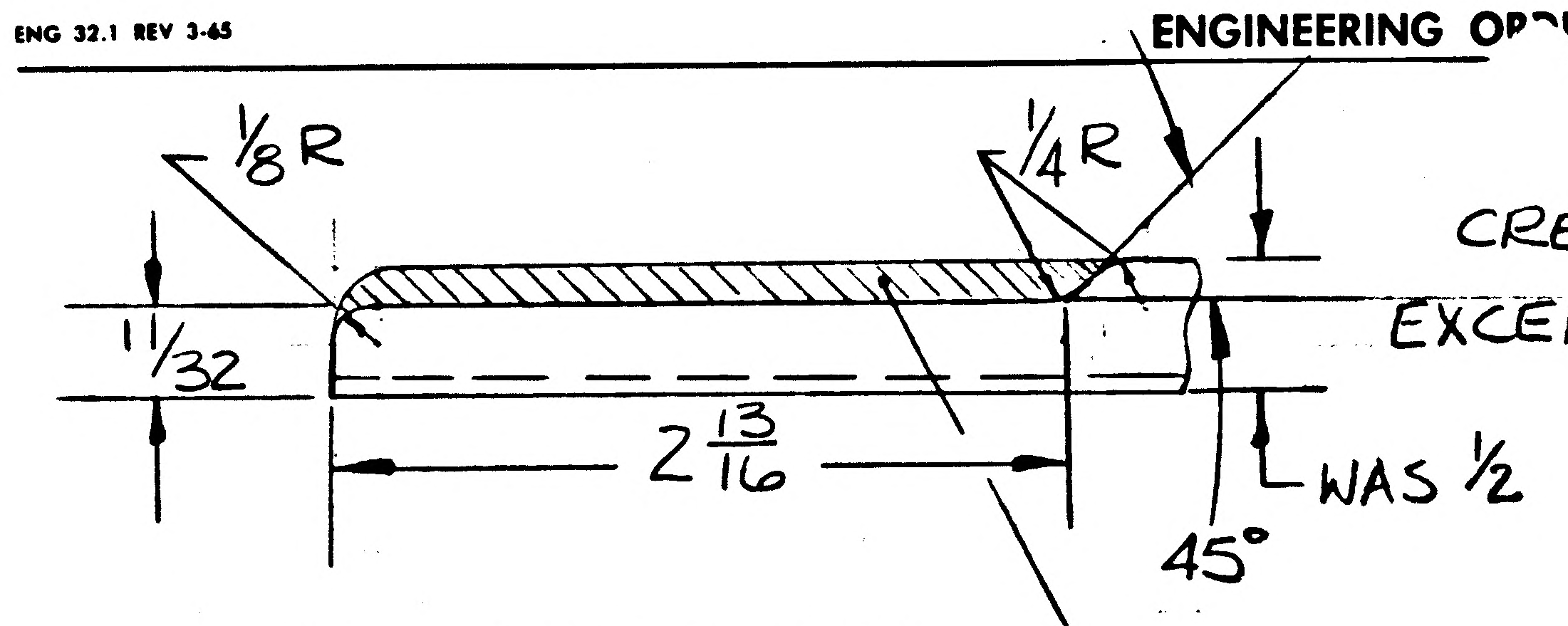
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18445		EO NO. A3
CONTROL INFO NO. LDW280B3575		



TRIM SHADED AREA AS SHOWN; TYP. BOTH ENDS

CREATE -21 IDENT. TO -17 EXCEPT AS NOTED. N/A LDW280-23518 EFF. LTA-8; 1 REQ'D /MOD.

FOR -13, EFF. LTA-8 (18); N/A LDW280-23518; QTY. 1 REQ'D/MOD; (WAS) 2 REQ'D/MOD.

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCR 1021-37 REV. A PKG. 3	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TRIM ZEE FOR CHANNEL CLEARANCE; REMOVE STIFFENER FOR PALLET DEPLOYMENT CLEARANCE	CREATED -21; CHANGED -13 FROM 2 REQ'D PER MOD. TO 1 REQ'D/MOD. EFF LTA-8	JK 6/3/8

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM130	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	5/31/68	5-31-68		5/29/68	5/31/68		5/31/68	6-3-68
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VDI	THERMO						
						~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	RAIL ~ D/S ~ QUAD IV EQUIPT. STOWAGE PALLET	LDW280-18445	A3

5/31/68
ISSUED BY J. LUCCHESI /P. THORJUSEN x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 3..1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1004
CONTROL INFO NO. LDW280B3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4
-18446	↑	A3
-18447		A2
-18448		A3
-18449		A2
-18450		A5
M17830		A3
M17831		A3
↓ M17353	↓	A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2502 PKG 2 CCA 857 (5)

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C VC 6/10/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY							
✓		NOT	REQD	DATE	5/27/68			5-24-68	5/24/68	5/27/68	6-10-68
				S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1004

CDR 5/31/68
ISSUED BY F. MADDEN/P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1017
CONTROL INFO NO. LDW280B3639

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8. *USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446		A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853		A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3128 PKG 2

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

GAEC EO RELEASE: (5) 6/22/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~
APPROVED BY								
DATE	5/27/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18446

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
				LM	LDW280-23518	LTA-3(13)	2	LM	LDW280-23518	LTA-3(13)	1 EA
PART NO.		GAEC SCH NO.		PART NO. LDW280-18446-13		GAEC SCH NO.		PART NO. LDW280-18446-11, -15, -17-19 & -21		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00		4.00	
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED: B
LAST DASH NO. USED: -21
GRUMMAN REC INFO
PRIM NO. JK(001)
207 MP-16-12/6/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011 (CCA668)
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY
LAYOUT BY F. MADDEN
CHECKED BY D. FASS 12-5-67
GR. LEADER Thorjusen 11/21/67
VEH. DES. INT [illegible] 11/[illegible]
STRUCT. WB 11/22/67
STRUCT [illegible] 11/22
WEIGHTS
RELIABILITY
PROJ ENGR J. Pusateri 11/27
REL GROUP [illegible] 12/5/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ QUAD IV ~
EQUIPMENT STOWAGE PALLET

SIZE B
CODE IDENT NO. 26512
LDW280-18446
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 12-8-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18446-21	E		WEB	AL. ALLOY SH.	QQ-A-250/12	7075-T6	.071 X 11 X 31.	NONE	88	
	-19							.071 X 5 X 31			
	-17							.071 X 12 X 40			
	-15							.071 X 11 X 40			
	-13							.071 X 5 X 40			
	LDW280-18446-11	E		WEB	AL. ALLOY SH.	QQ-A-250/12	7075-T6	.071 X 12 X 31	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18446

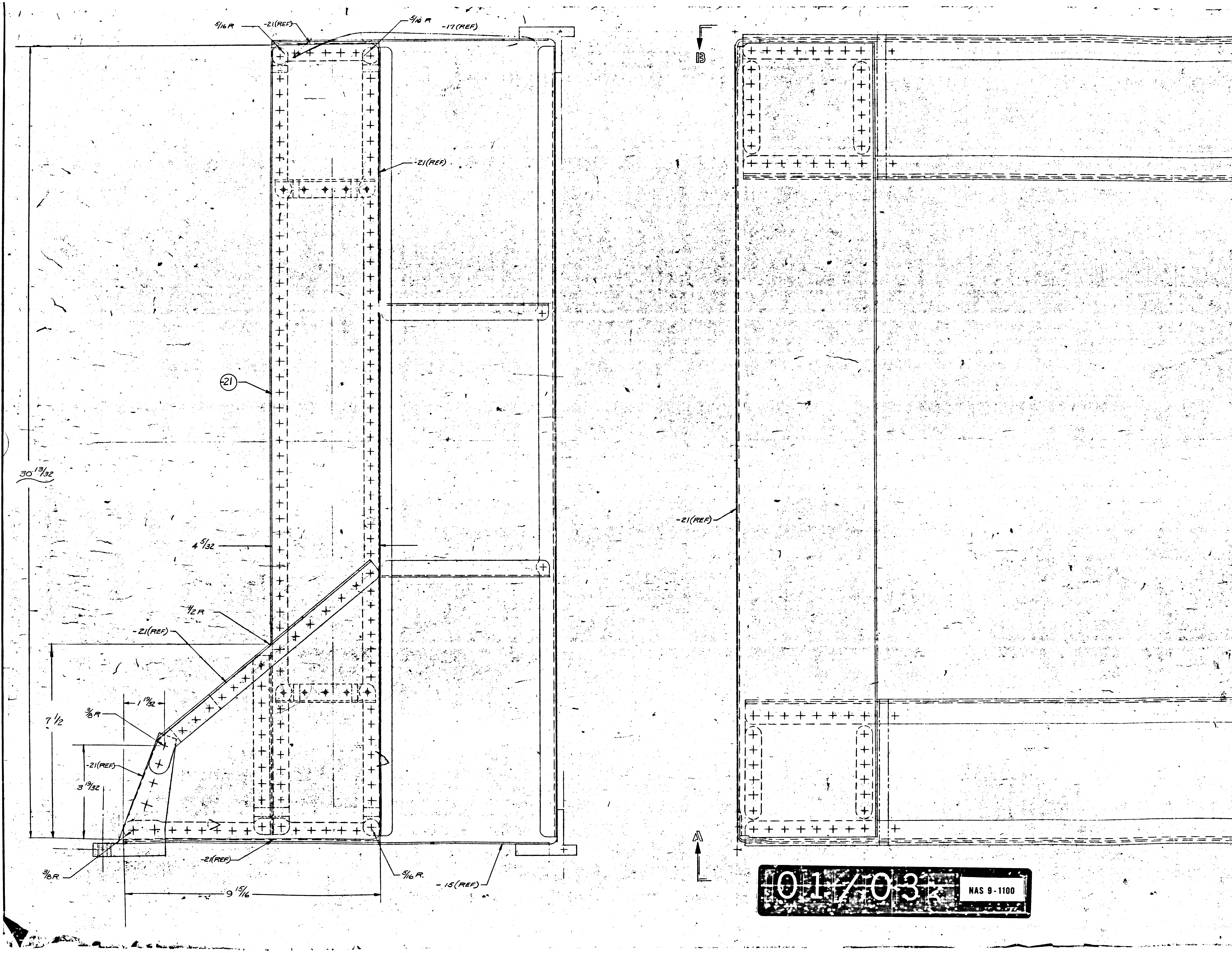
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100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5/16 R
-17(REF)
-21(REF)
-21
30 13/32
4 5/32
1/2 R
-21(REF)
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1 19/32
3/8 R
-21(REF)
3 19/32
3/8 R
-21(REF)
9 15/16
5/16 R
-15(REF)
B
A
-21(REF)

01/03

NAS 9-1100

02/03 NAS 9-1100

-17(REF)
-19(REF)
-11(REF
B SHT4
1 1/8
1 5/16
3/8R
3/8R
3/8R
1/2R
5/16R
-13(REF)
-19(REF)
19
3 11/16
30 13/32
30 13/32
11
-19(REF)
-11(REF)
-11(REF)
-19(REF)
-13 (REF)
1/16
1/16
3/8R
3/8R
3/8R
1/2R
5/16R
1 15/16 (TYP)
1 1/8
3/8R (TYP)
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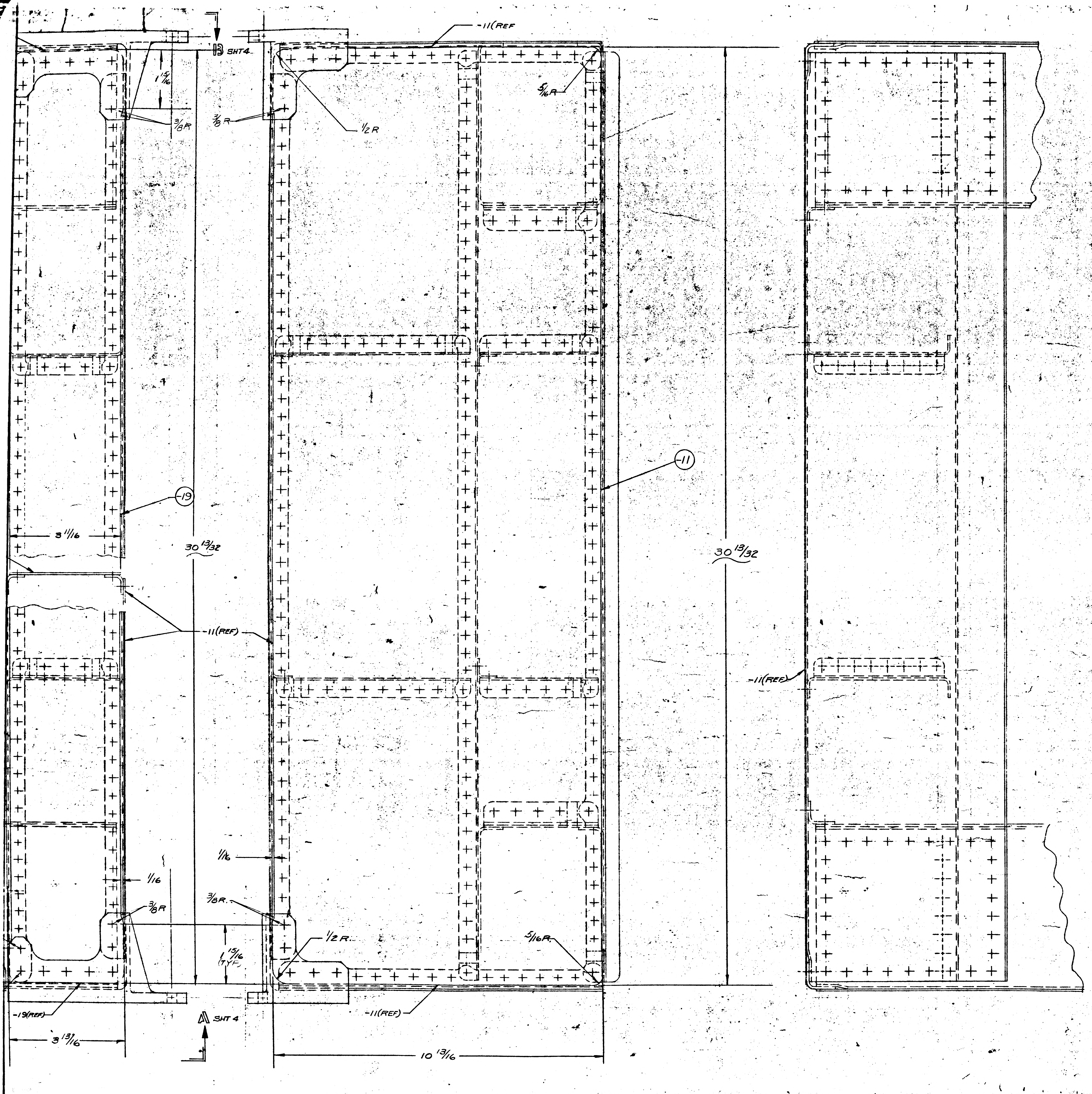
-15(REF)
-11(REF)
A SHT 4
3 13/16
10 13/16



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY

FULL SIZE SHEET AREA

PRINT TRIM LINE

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. CREW HAZARD - PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL SHARP EDGES & BURRS

LDW280-18446

03/03

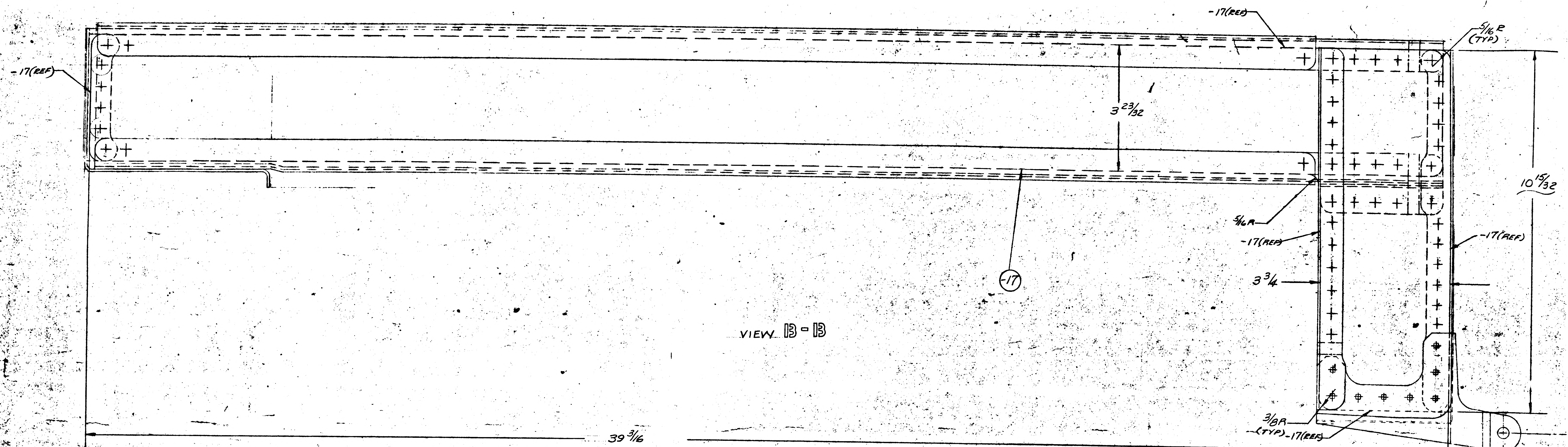
NAS 9-1100

LDW280-18446

LAYOUT RELEASE TO BE REDRAWN ON
PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
	SIZE J · CODE IDENT NO. 26512 · LDW280-18446
LM MODEL OR END ITEM	SCALE FULL · SHEET 3.00

THIS IS AN ORIGINAL DRAWING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5/16R (TYP)
-17(REF)
3 23/32
10 15/32
5/16R
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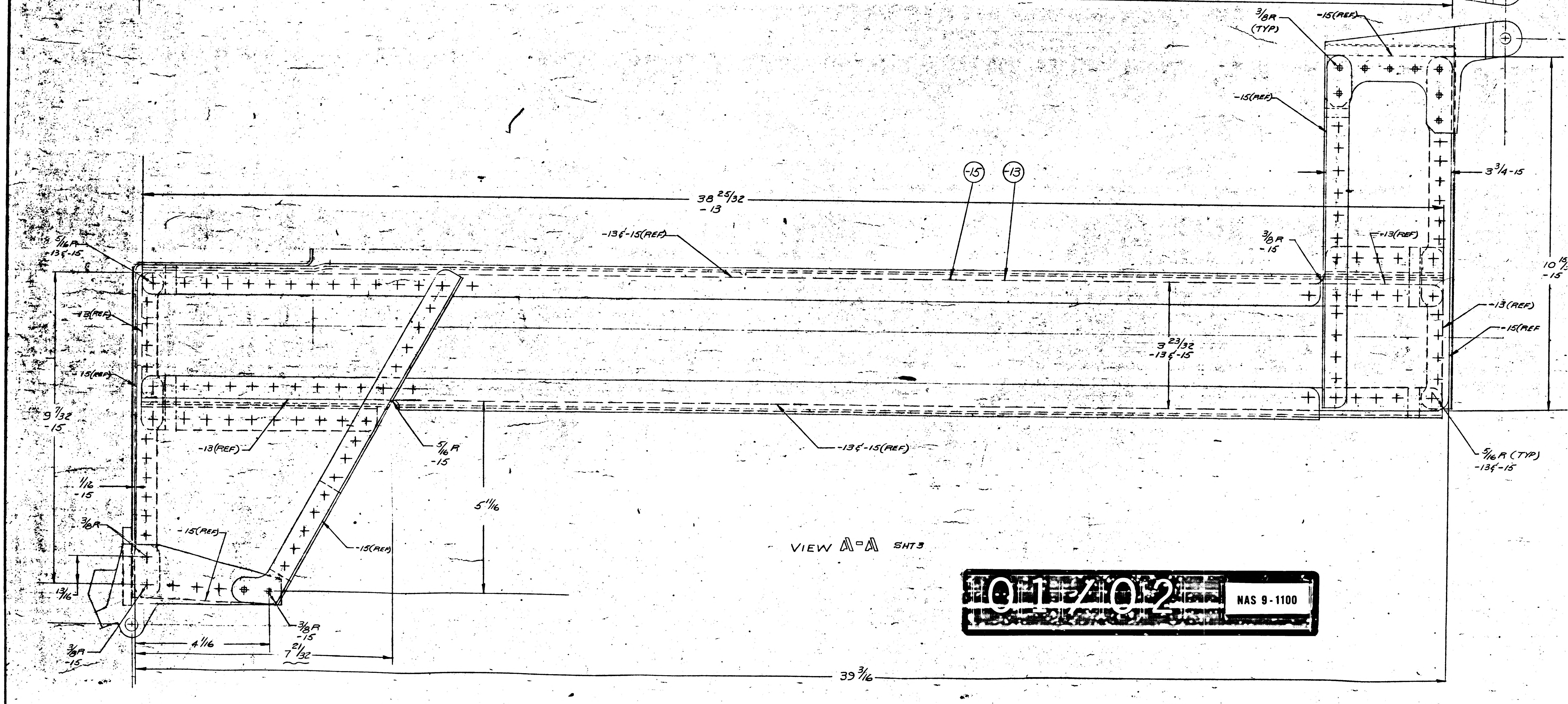
-17(REF)
3 3/4
-17
3/8R (TYP)
-17(REF)
39 3/16

VIEW B-B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3 3/4-15
-15
-13
38 25/32 -13
5/16R -13&-15
-13&-15(REF)
3/8R -15
-13(REF)
10 15/32 -15
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-15(REF)
-15(REF)
3 23/32 -13&-15
9 7/32 -15
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5/16R -15
-13&-15(REF)
5/16R (TYP) -13&-15
1/16 -15
5 11/16
3/8R
-15(REF)
-15(REF)
13/16
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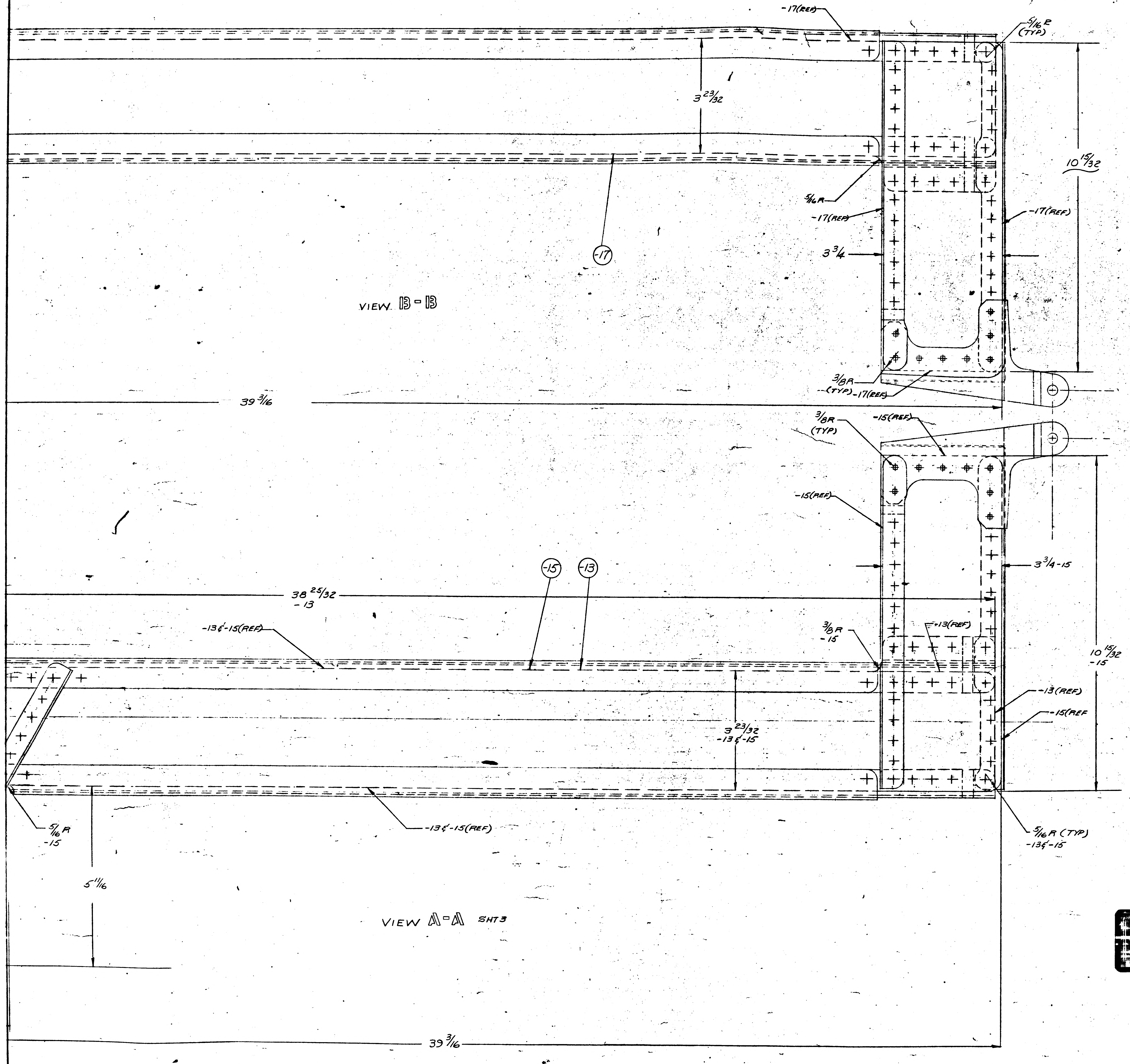
3/8R -15
4 1/16
7 21/32
39 3/16

VIEW A-A SHT 3

01/02 NAS 9-1100


-17(REF)
5/16R (TYP)
3 23/32
10 15/32
5/16R
-17(REF)
-17(REF)
-17
3 3/4
VIEW B-B
3/8R (TYP) -17(REF)
39 3/16
3/8R (TYP)
-15(REF)
-15(REF)
3 3/4-15
-15
-13
38 25/32 -13
-13&-15(REF)
-13(REF)
3/8R -15
10 15/32 -15
-13(REF)
-15(REF
3 23/32 -13&-15
-13&-15(REF)
5/16R -15
5/16R (TYP) -13&-15
5 11/16
VIEW A-A SHT3
39 3/16

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY

LDW280-18446

LDW280-18446

02/02 NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18446	
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

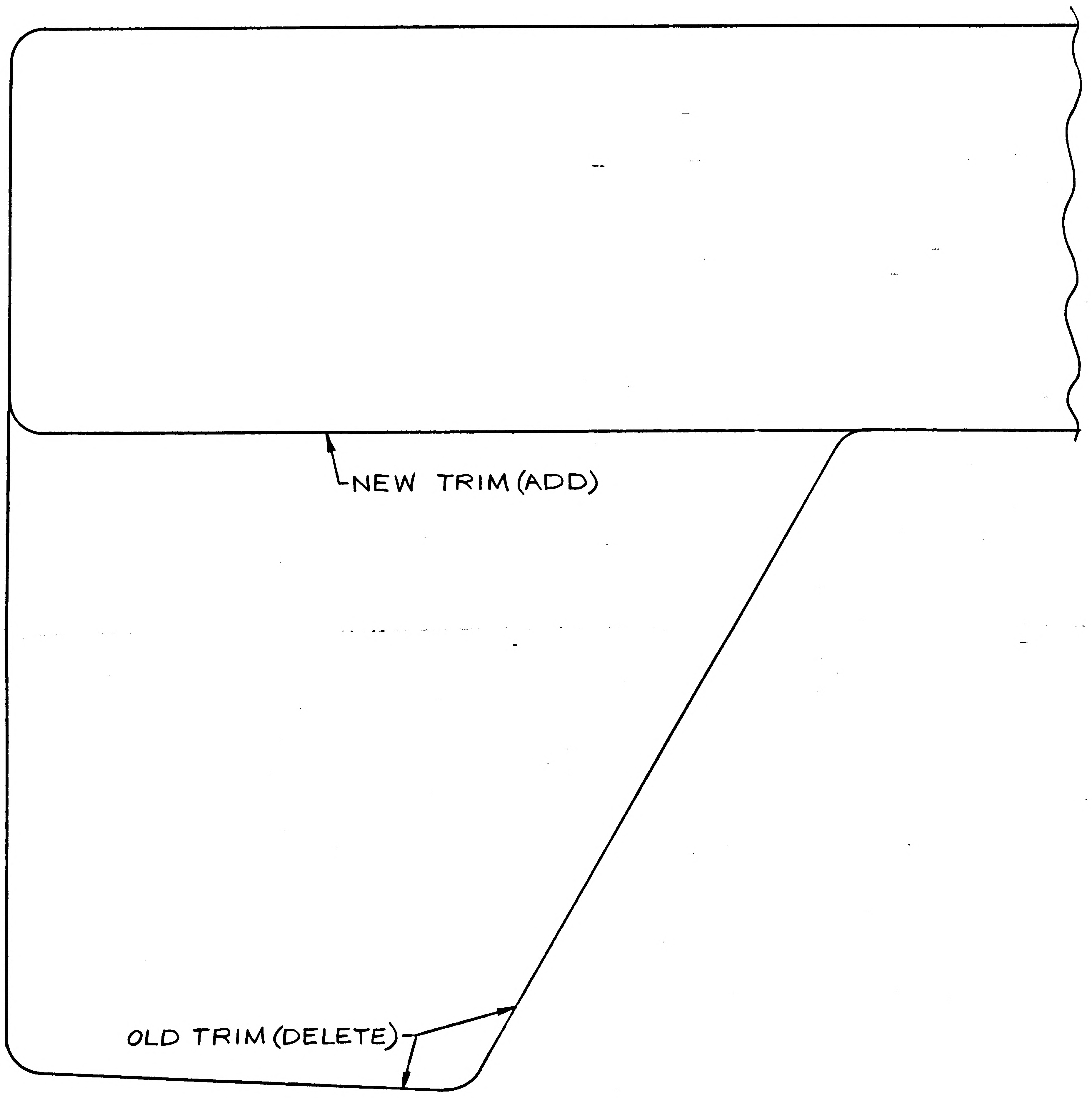
THIS IS AN ORIGINAL DRAWING

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18446	EO NO.	A1
CONTROL INFO NO.	LM-2-4396		

01
NAS 9-1100



LDW280-18446-15

FOR REWORK OF EXISTING PARTS REFINISH TRIMMED AREA #76

DETAIL SPEC REQ ☐ CL III ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2011 CCA 668

GAEC EO RELEASE (2) ✓

REASON FOR EO: ELIMINATE INTERFERENCE WITH FLANGE OF LDW280-18445-14 RAIL.

DESCRIPTION OF EO: IN FLD/DWG FOR -15 REVISED TRIM

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JMS			—	MBS	CH	JAP	WP 98045
DATE	1/18/68			—	1/18/68	1/18/68	1/18/68	1-20-68
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[redacted]

PRIORITY: C

DRAWING TITLE: WEB~DESCENT STAGE~QUAD IV EQUIPMENT STOWAGE PALLET

DRAWING NO.: LDW280-18446

EO NO.: A1

ISSUED BY LIAISON J. MALONEY 1/18/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 977
CONTROL INFO NO. LDW280B.3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING NO.	TITLE	CHANGE NO.
LDW280M17830	SEE DWG.	A2 ✓
M17831		A2 ✓
M17836		A6 ✓
M17853		A2 ✓
-18445		A2 ✓
-18446		A2 ✓
-18447		A1
-18448		A2
-18449		A1
-18450		A4
LDW280-18456	SEE DWG	A3

LFM

*USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1021-37 PKG. 3 (REV. A) (5)

REASON FOR EO: UPDATE LTA-3 MESS BOX TO LM-5 -LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: JK 5/22/68

MODEL	EFFECTIVITY: EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	5/11/68			5-11-68	5/14/68		5/14/68	5-24-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 5_.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1004
CONTROL INFO NO. LDW280B3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4 ✓
-18446	↑	A3 ✓
-18447		A2
-18448		A3
-18449		A2
-18450		A5
M17830		A3
M17831		A3
M17853	↓	A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2502 PKG 2 CCA 857 (5)

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C VC 6/10/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD | S

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	7/27/68			5-24-68	5/24/68		5/27/68	6-10-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 1004

CDR 5/31/68
ISSUED BY F. MADDEN / P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1017
CONTROL INFO NO. LDW280B3639

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8. *USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446		A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853		A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3128 PKG 2 (5)

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

GAEC EO RELEASE: JK 6/22/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REWORK ☐ REQ'D SCRAP ☐

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	5/27/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. ALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18447

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	LTA-3(13)	1 EA
PART NO. LDW280-18447-11, -13, -15, -16, -17, -18 & -19		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL & INFO	
LAST DASH NO. USED	-19	PRIM NO. 207	S/F 001 MP-16 -12/7/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2011 (CCA 668)
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	F. MADDEN		
CHECKED BY	D. FASS 12-6-67		
GR. LEADER	Thorjussen 12-1-67		
VEH DES INT	12/1/67		
STRUCT	WB	PROJ ENGR	12/1/67
STRUCT	WJK 12/4/67	REL GROUP	12/6/67
WEIGHTS			

©
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE ~ QUAD IV
EQUIPMENT STOWAGE PALLET

SIZE B
CODE IDENT NO. 26512
LDW280-18447
SCALE NONE
SHEET 1.00 OF 3

CDR 12-8-67

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18447-19	E		STIFFENER	AL. ALLOY SH.	QQ-A-250/12	7075	.080 X 2 X 32	T6	88	
	-18	↕		CHANNEL	↕	↕	↕	.080 X 5 X 7	↕	↕	
	-17	↕		CHANNEL	↕	↕	↕	.080 X 5 X 7	↕	↕	
	-16	↕		CHANNEL	↕	↕	↕	.080 X 6 X 7	↕	↕	
	-15	↕		CHANNEL	↕	↕	↕	.080 X 6 X 7	↕	↕	
	-13	↕		CHANNEL	↕	↕	↕	.080 X 7 X 31	↕	↕	
	LDW280-18447-11	E	—	STIFFENER	AL. ALLOY SH.	QQ-A-250/12	7075	.080 X 3 X 30	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL. HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

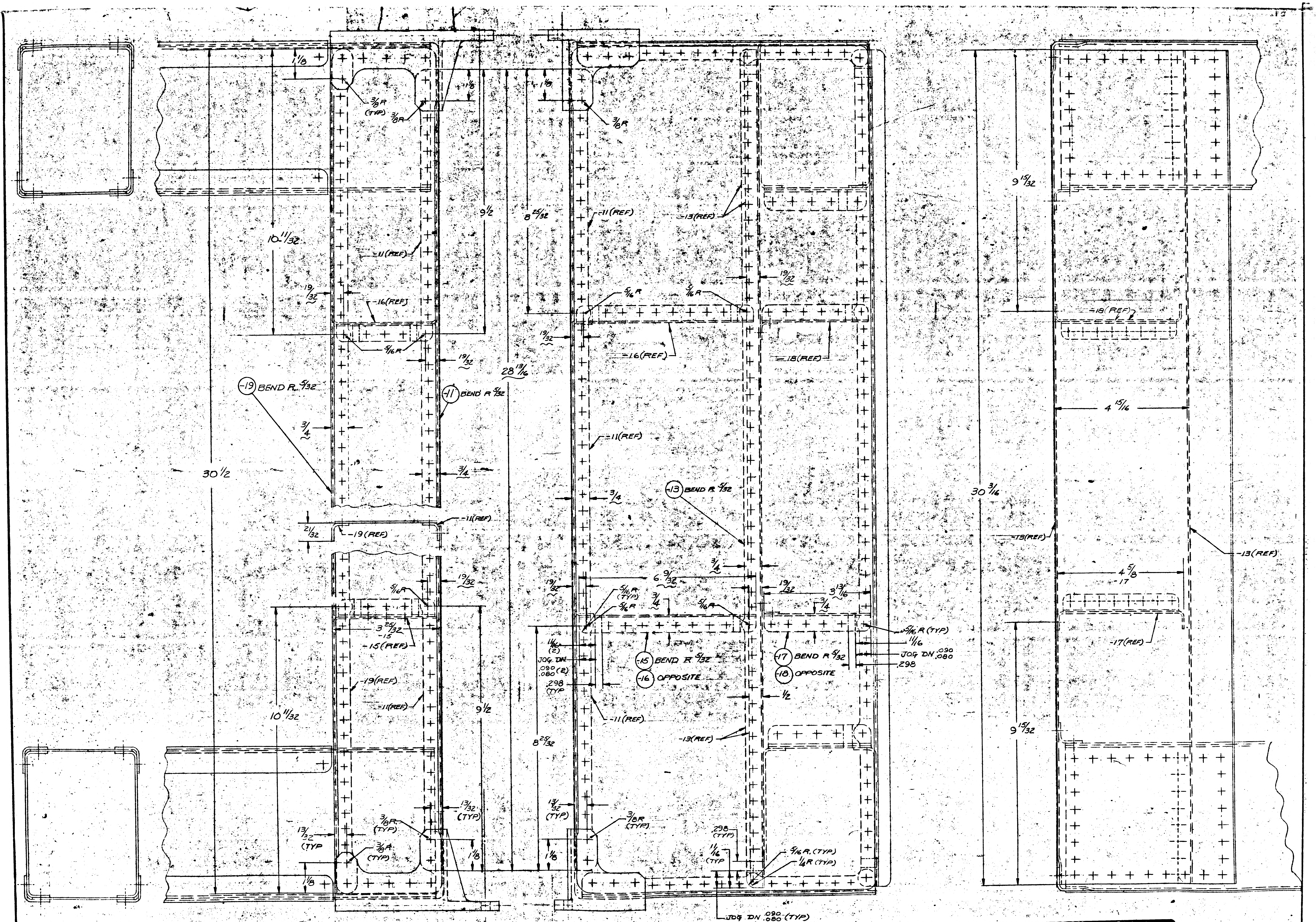
SIZE	CODE IDENT NO.	
B	26512	LDW280-18447

SCALE NONE
SHEET 2.00

ENG 77.2 5-64

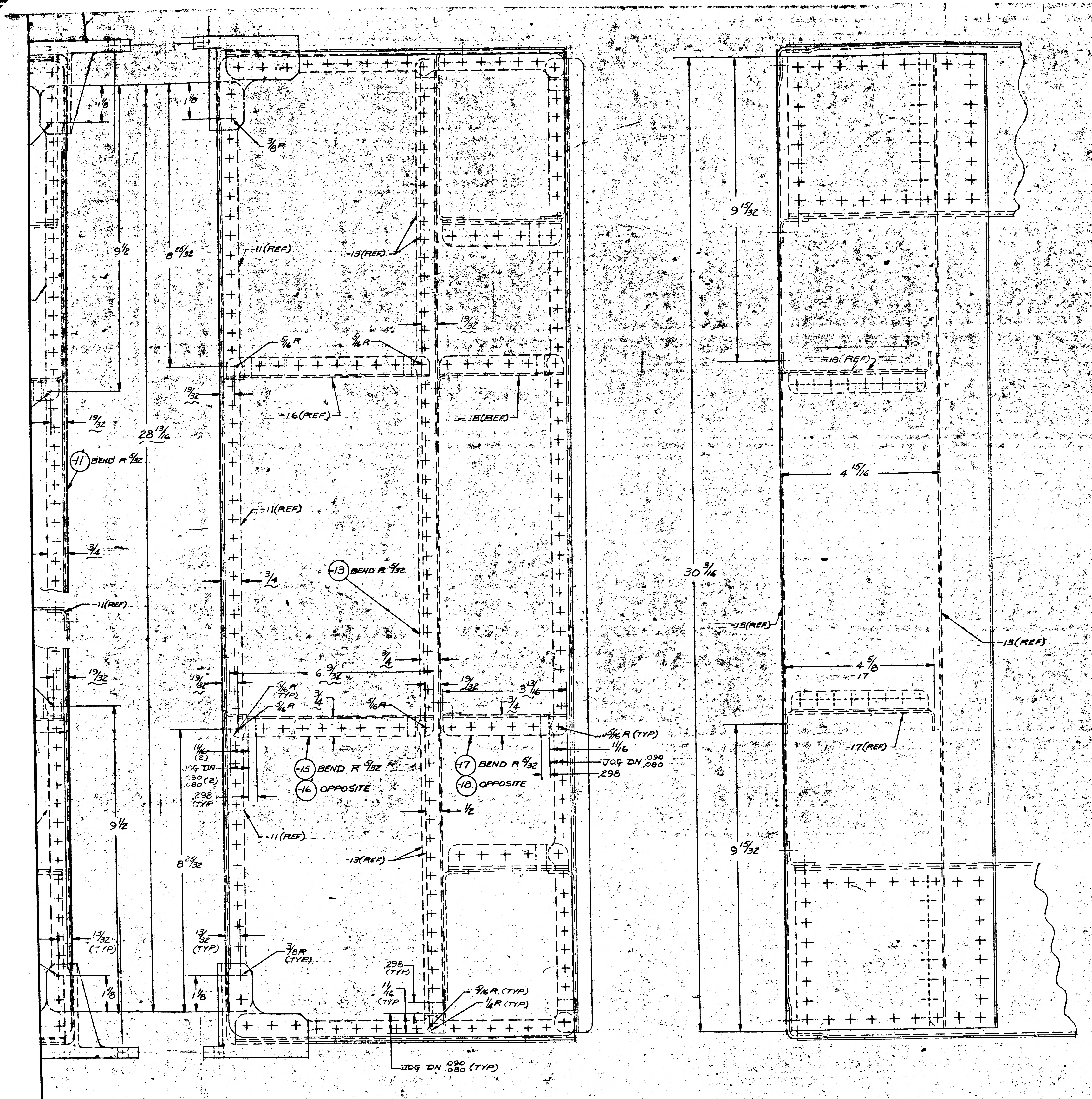
01

NAS 9-1100


1 1/8
3/8 R (TYP)
3/8 R
1/8
10 11/32
9 1/2
8 25/32
3/16 R
-11 (REF)
-13 (REF)
19/32
-16 (REF)
5/16 R
-19 BEND R 9/32
-11 BEND R 5/32
28 13/16
30 1/2
3/4
-18 (REF)
-13 BEND R 5/32
9 15/32
4 15/16
30 3/16
-13 (REF)
4 5/8
-17
21/32
-19 (REF)
3 25/32
-15
-15 (REF)
6 9/32
3 13/16
5/16 R (TYP)
11/16
JOG DN .090 .080
.298
(TYP)
-15 BEND R 5/32
-16 OPPOSITE
-17 BEND R 5/32
-18 OPPOSITE
1/2
-17 (REF)
-11 (REF)
13/32 (TYP)
3/8 R (TYP)
1 1/8
.298 (TYP)
11/16 (TYP)
5/16 R (TYP)
1/4 R (TYP)
JOG DN .090 .080 (TYP)

01/02

NAS 9-1100


1/8
3/8 R
9 1/2
8 25/32
-11 (REF)
-13 (REF)
9 15/32
5/16 R
5/16 R
-18 (REF)
19/32
19/32
-16 (REF)
-18 (REF)
19/32
28 13/16
-11 BEND R 5/32
4 15/16
-11 (REF)
3/4
3/4
-13 BEND R 5/32
30 3/16
-11 (REF)
-13 (REF)
-13 (REF)
19/32
4 5/8
-17
6 9/32
3/4
19/32
3 13/16
19/32
5/16 R (TYP)
5/16 R
3/4
5/16 R
3/4
5/16 R (TYP)
11/16
11/16 (2)
JOG DN .090 .080 (2)
-15 BEND R 5/32
-16 OPPOSITE
-17 BEND R 5/32
-18 OPPOSITE
JOG DN .090 .080
.298
-17 (REF)
.298 (TYP)
1/2
-11 (REF)
9 1/2
8 25/32
-13 (REF)
9 15/32
13/32 (TYP)
13/32 (TYP)
3/8 R (TYP)
.298 (TYP)
11/16 (TYP)
5/16 R. (TYP)
1/4 R (TYP)
1 1/8
1 1/8
JOG DN .090 .080 (TYP)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY

NOTES

1. ALL INFORMATION NOT REQUIRED FOR MANUFACTURE LDW280-18447-11,-13,-15,-16, -17,-18 & -19 IS FOR REF. ONLY.
2. NO TOOLING HOLES PERMITTED IN PARTS.

LDW280-18447

02/02 NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN
ON PRODUCTION FORMAT

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-18447
MODEL OR END ITEM	SCALE FULL		SHEET 3,90

THIS IS AN ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 977
CONTROL INFO NO. LDW280B 3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING NO.	TITLE	CHANGE NO.	
LDW280M17830	SEE DWG.	A2	✓
M17831	↑	A2	✓
M17836		A6	✓
M17853		A2	✓
-18445		A2	✓
-18446		A2	✓
-18447		A1	✓
-18448		A2	
-18449		A1	
-18450	↓	A4	
LDW280-18456	SEE DWG	A3	

LFM

*USE APPLICABLE DASH NO'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1021-37 PKG. 3 (REV. A)	(5)

REASON FOR EO: UPDATE LTA-3 MESS BOX TO LM-5 - LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: JK 5/22/68

MODEL	EFFECTIVITY EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT	REQ'D	DATE	5/11/68			5-11-68	5/14/68	5/14/68	5-24-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	977

ISSUED BY 5/17/68 J. LUCCHESI / H. PALLMEYER x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 3_.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1004
CONTROL INFO NO. LDW 280 B 3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4 ✓
-18446		A3 ✓
-18447		A2 ✓
-18448		A3
-18449		A2
-18450		A5
M17830		A3
M17831		A3
M17853		A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2502 PKG 2 CCA 857 (5)

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C VC 6/10/8

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQD SCRAP REQD

APPROVED BY							
DATE 5/27/68			5-24-68	5/24/68		5/27/68	6-10-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 1004

CDR 5/31/68
ISSUED BY F. MADDEN / P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. /017
CONTROL EO NO. LDW280B3639	

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8. *USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446		A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853		A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3128 PKG 2

(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC I C EO RELEASE
DES. VER. TEST OF M.E.S.S.	IN M/B FOR* ADDED D.V.T. EFF.	JK 6/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT	REQ'D	APPROVED BY								
				DATE	6/?/68			5/27/68	5/27/68		5/27/68	6-21-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	/017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18448

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	LTA-3(13)	1 EA
PART NO. LDW280-18448-11, -13,-15,-17-19,-20,&-21		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00		4.00		
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED G

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-16 12/8/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE L

LCD2011(CCA668)
OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY

LAYOUT BY F. MADDEN

CHECKED BY J. BELL 12-7-67

GR. LEADER 12-1-67

VEH. DES INT 12/1/67

STRUCT. WB 12/4/67

STRUCT 12/4/67

WEIGHTS

RELIABILITY

PROJ ENGR 12/1/67

REL GROUP 12/7/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FRAME
DESCENT STAGE ~ QUAD IV ~
EQUIPMENT STOWAGE PALLET

SIZE B

CODE IDENT NO. 26512

LDW280-18448

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 12-8-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18448-21	E		ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.080 X 3 X 5	T6	88	
	-20			ANGLE				.080 X 2 X 5			
	-19			ANGLE				.080 X 2 X 5			
	-17			ANGLE				.080 X 3 X 11			
	-15			ANGLE				.080 X 2 X 13			
	-13			ANGLE				.080 X 2 X 8			
	LDW280-18448-11	E		FRAME	AL ALLOY SH.	QQ-A-250/12	7075	.080 X 10 X 32	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18448

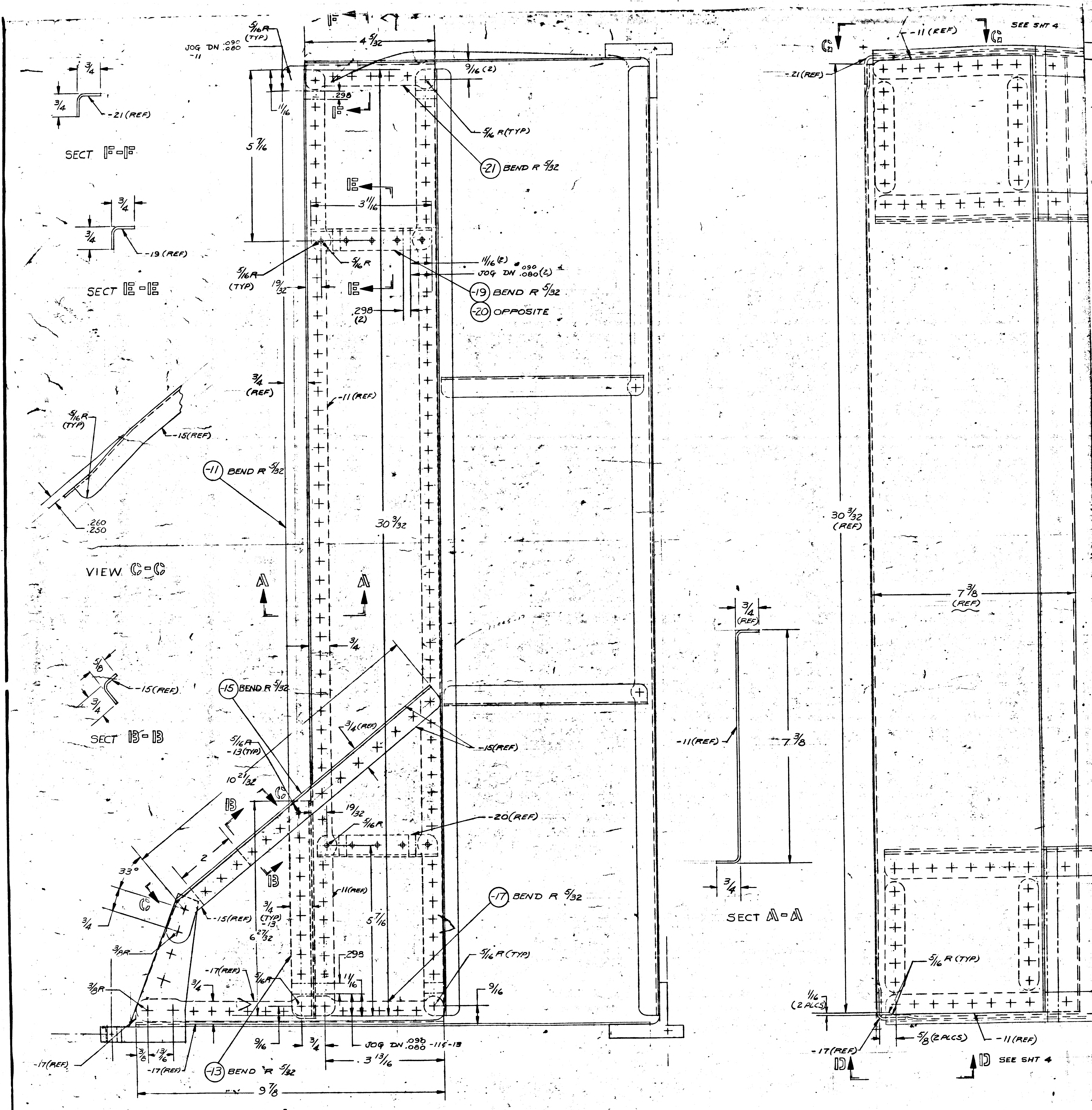
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


SECT F-F
3/4
3/4
-21 (REF)
SECT E-E
3/4
3/4
-19 (REF)
VIEW C-C
5/16 R (TYP)
-15 (REF)
.260
.250
SECT B-B
5/8
3/4
-15 (REF)
JOG DN .090 .080 -11
5/16 R (TYP)
4 5/32
9/16 (2)
.298
11/16
5 7/16
5/16 R (TYP)
-21 BEND R 5/32
3 11/16
5/16 R (TYP)
5/16 R
19/32
11/16 (2)
JOG DN .090 .080 (2)
-19 BEND R 5/32
-20 OPPOSITE
.298 (2)
3/4 (REF)
-11 (REF)
-11 BEND R 5/32
30 3/32
A
A
3/4
-15 BEND R 5/32
3/4 (REF)
5/16 R -13 (TYP)
10 21/32
-15 (REF)
B
C
19/32
5/16 R
-20 (REF)
2
33°
3/4
-15 (REF)
3/8 R
3/8 R
-17 (REF)
3/4 (TYP) -13
6 27/32
-11 (REF)
5 7/16
.298
11/16
-17 BEND R 5/32
5/16 R (TYP)
9/16
3/4
5/16 R
-17 (REF)
3/8
13/16
-17 (REF)
9/16
3/4
JOG DN .090 .080 -11 & -13
3 13/16
-13 BEND R 5/32
9 7/8
SECT A-A
3/4 (REF)
-11 (REF)
7 3/8
3/4
SEE SHT 4
C
-11 (REF)
-21 (REF)
30 3/32 (REF)
7 3/8 (REF)
5/16 R (TYP)
1/16 (2 PLCS)
-17 (REF)
5/8 (2 PLCS)
-11 (REF)
D
SEE SHT 4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ALL INFORMATION NOT REQUIRED FOR MANUFACTURE OF LDW280-18448-11,-13,-15, -17,-19,-20 & -21 IS FOR REF. ONLY

LDW280-18448

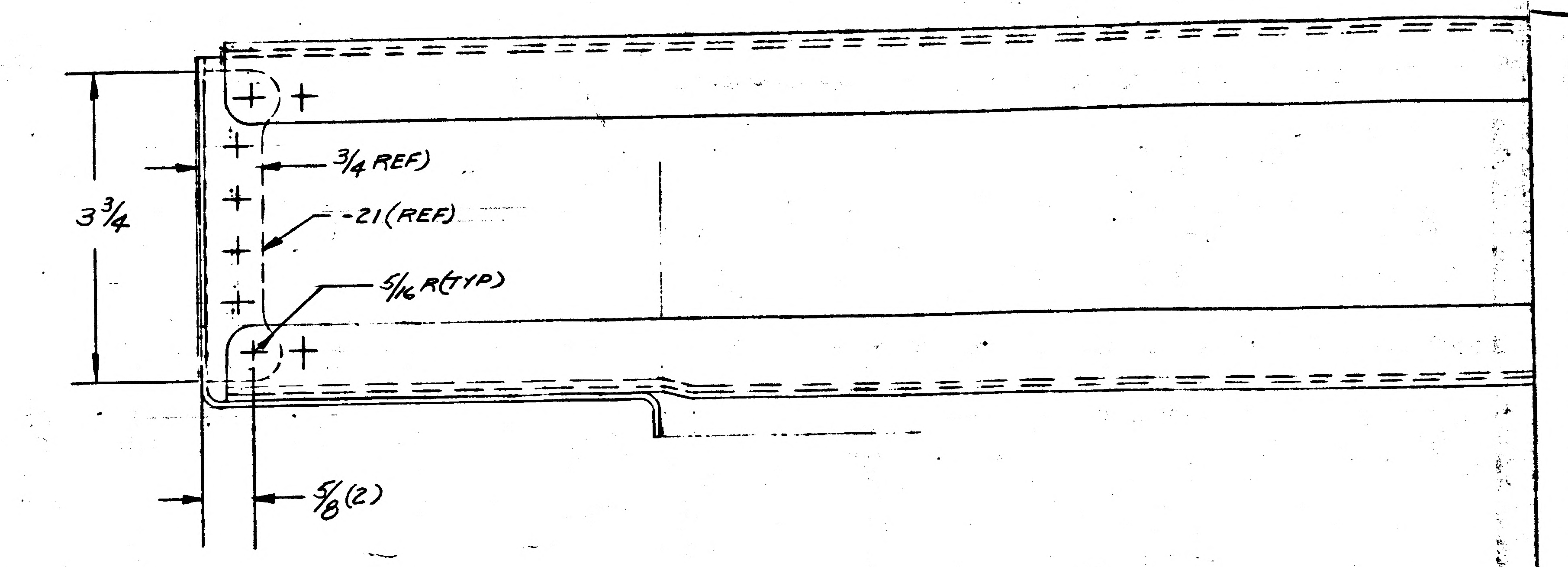
01 NAS 9-1100

LDW280-18448

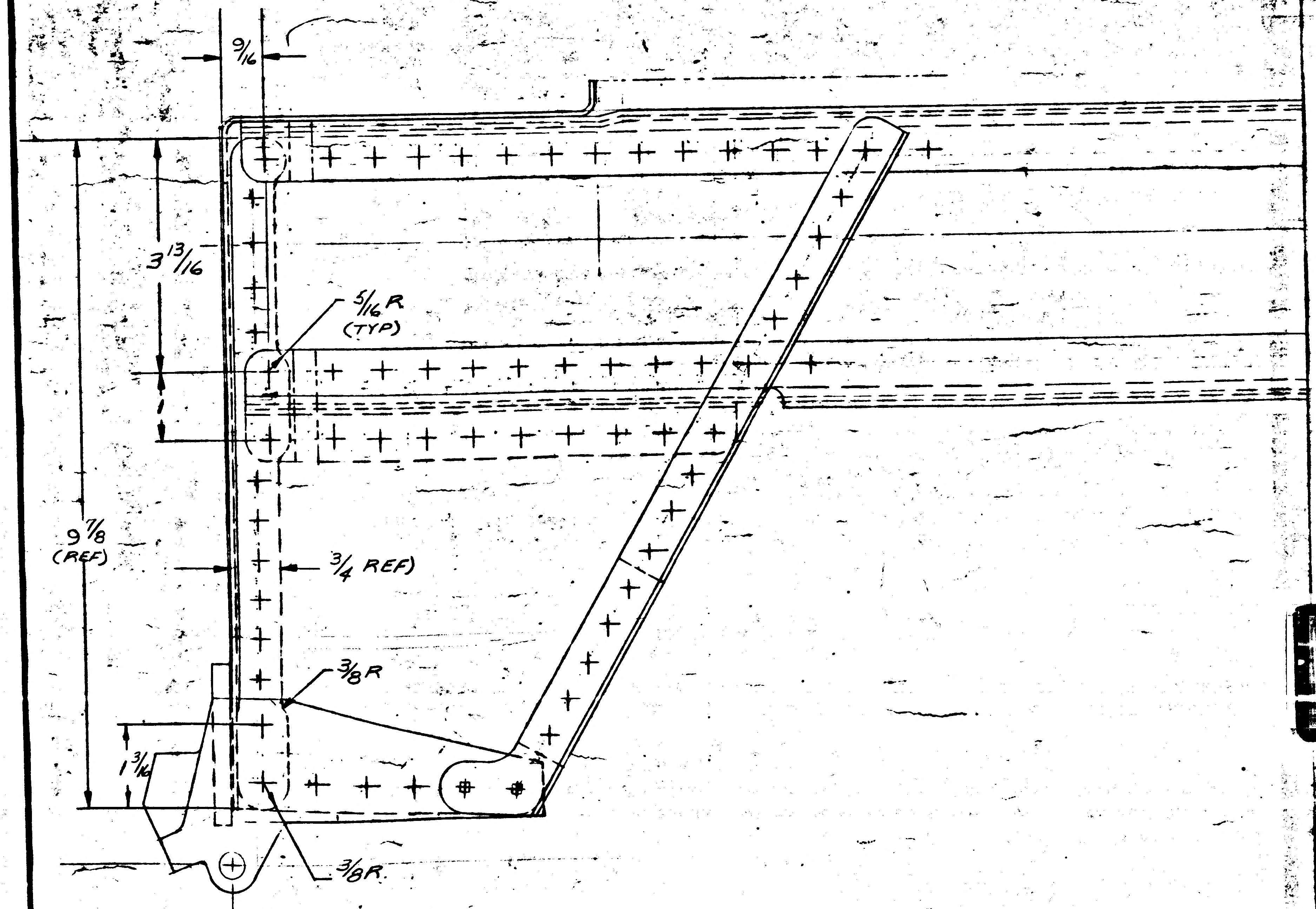
LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18448	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DRAWING



VIEW G-G SHT 3



VIEW D-D SHT 3

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X)= SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-18448

LDW280-18448

01

NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN
ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW280-18448
LM MODEL OR END ITEM	SCALE FULL		SHEET 4.00

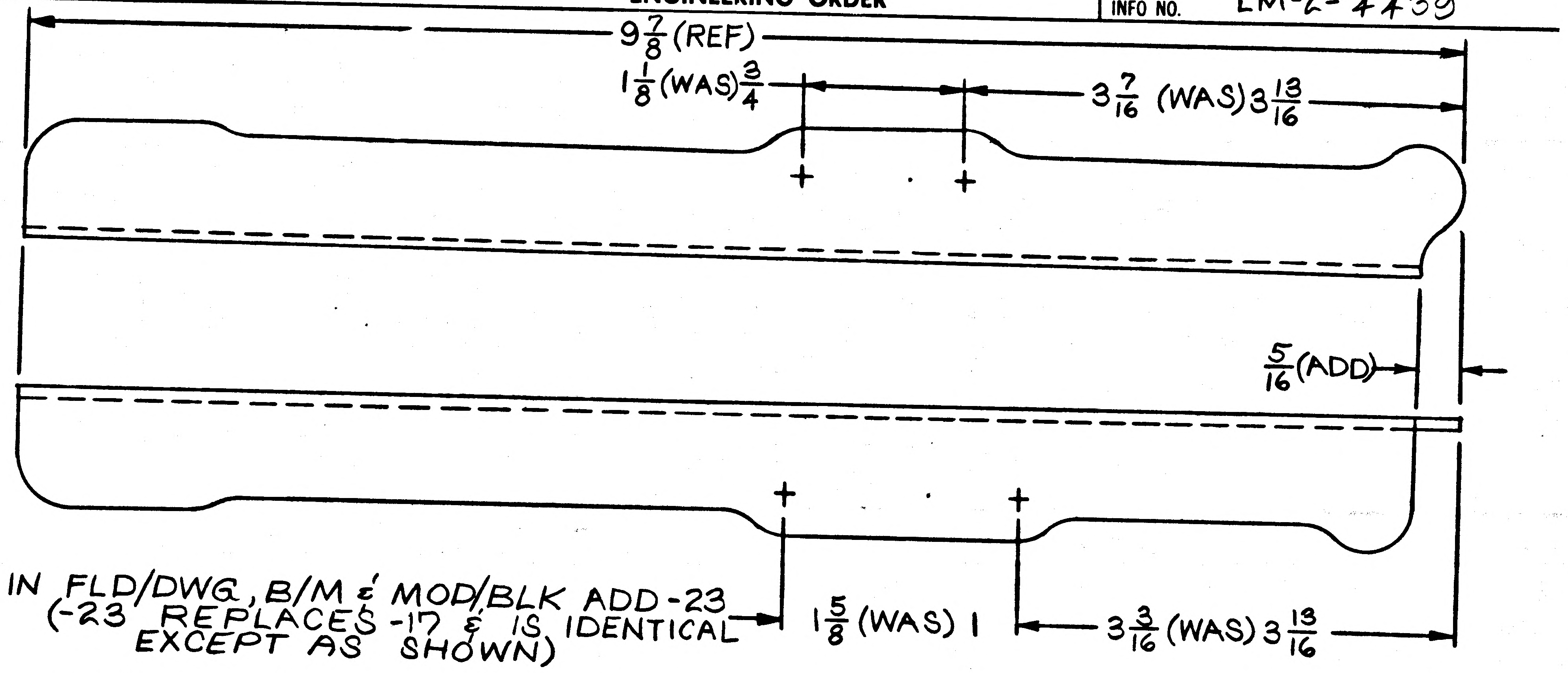
THIS IS AN ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18448		EO NO. A1
CONTROL INFO NO. LM-2-4439		



$9\frac{7}{8}$ (REF)
$1\frac{1}{8}$ (WAS) $\frac{3}{4}$
$3\frac{7}{16}$ (WAS) $3\frac{13}{16}$
$\frac{5}{16}$ (ADD)
$1\frac{5}{8}$ (WAS) 1
$3\frac{3}{16}$ (WAS) $3\frac{13}{16}$

IN FLD/DWG, B/M & MOD/BLK ADD -23
(-23 REPLACES -17 & IS IDENTICAL
EXCEPT AS SHOWN)

IN FLD/DWG, B/M & MOD/BLK DELETE -17

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 CCA 668

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INSURE PROPER ALIGNMENT OF CROSS MEMBERS	IN FLD/DWG, B/M & MOD/BLK -23 WAS -17.	(2)

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY	JAL			—	MBS	CH	JAL	02025
DATE	2/10/68			—	2/6/68	2/5/68	2/10/68	2-6-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FRAME~DESCENT STAGE~QUAD IV EQUIPMENT STOWAGE PALLET	LDW280-18448	A1

ISSUED BY LIAISON J. MALONEY 1/30/68 X3604 SECTION V.D.I. GROUP NO.____ PL____

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 977
CONTROL INFO NO. LDW280B3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING No.	TITLE	CHANGE No.
LDW280M17830	SEE DWG.	A2 ✓
M17831		A2 ✓
M17836		A6 ✓
M17853		A2 ✓
-18445		A2 ✓
-18446		A2 ✓
-18447		A1 ✓
-18448		A2 ✓
-18449		A1
-18450		A4
LDW280-18456	SEE DWG	A3

LFM

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1021-37 Pg. 3 (REV. A)

REASON FOR EO: UPDATE LTA-3 MESS BOX TO LM-5 -LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: (5) C JK 5/22/68

MODEL	EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQ'D SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JKG					JaP	
DATE	5/11/68			5-11-68	5/14/68	5/14/68	5-24-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 3..1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1004
CONTROL INFO NO. LDW280B3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4 ✓
-18446	↑	A3 ✓
-18447		A2 ✓
-18448		A3 ✓
-18449		A2
-18450		A5
M17830		A3
M17831		A3
↓ M17853	↓	A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2502 PKG 2 CCA 857 (5)

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C VC 6/10/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQD SCRAP
APPROVED BY / DATE: 5/27/68 S VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER: 5-24-68
STRESS GROUP: WBW
LIAISON ENGRG
PROJ ENGRG: 5/27/68
~~CONT~~ 6-10-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 1004

CDR 5/31/68
ISSUED BY F. MADDEN/P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01 (S NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1017

CONTROL INFO NO. LDW280B3639

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8.

*USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446	↑	A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853	↓	A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3128 PKG 2

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

GAEC EO RELEASE: (5) C JK 6/22/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY								
DATE	6/7/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18449

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	LTA-3(13)	1 EA
PART NO. LDW280-18449-11, -12,-13,-14,-15,-16,-17,-18,-19 & -20		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00		4.00	
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED: B
LAST DASH NO. USED: -20
GRUMMAN REL INFO
PRIM NO. 207
JK(001)
MP-16- 12/9/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2011 (CCA668)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY
LAYOUT BY F. MADDEN
CHECKED BY JDC 12-8-67
GR. LEADER 12-4-67
VEH. DES INT. 12/7/67
STRUCT W/H 12/7/67
STRUCT FEB 12/7
WEIGHTS
RELIBILITY
PROJ ENGR 12/7/67
REL GROUP 12-9-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ QUAD IV ~
EQUIPMENT STOWAGE PALLET

SIZE B
CODE IDENT NO. 26512
LDW280-18449
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 12-8-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18449-20	E		ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.080 X 3X 5	T6	88	
	-19							.080 X 3X 5			
	-18							.080 X 3 X 4			
	-17							.080 X 3X4			
	-16							.080 X 2 X 5			
	-15							.080 X 2 X 5			
	-14							.080 X 3 X 5			
	-13							.080 X 3 X 5			
	-12							.080 X 3 X 12			
	LDW280-18449-11	E		ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.080X 3 X 12	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18449

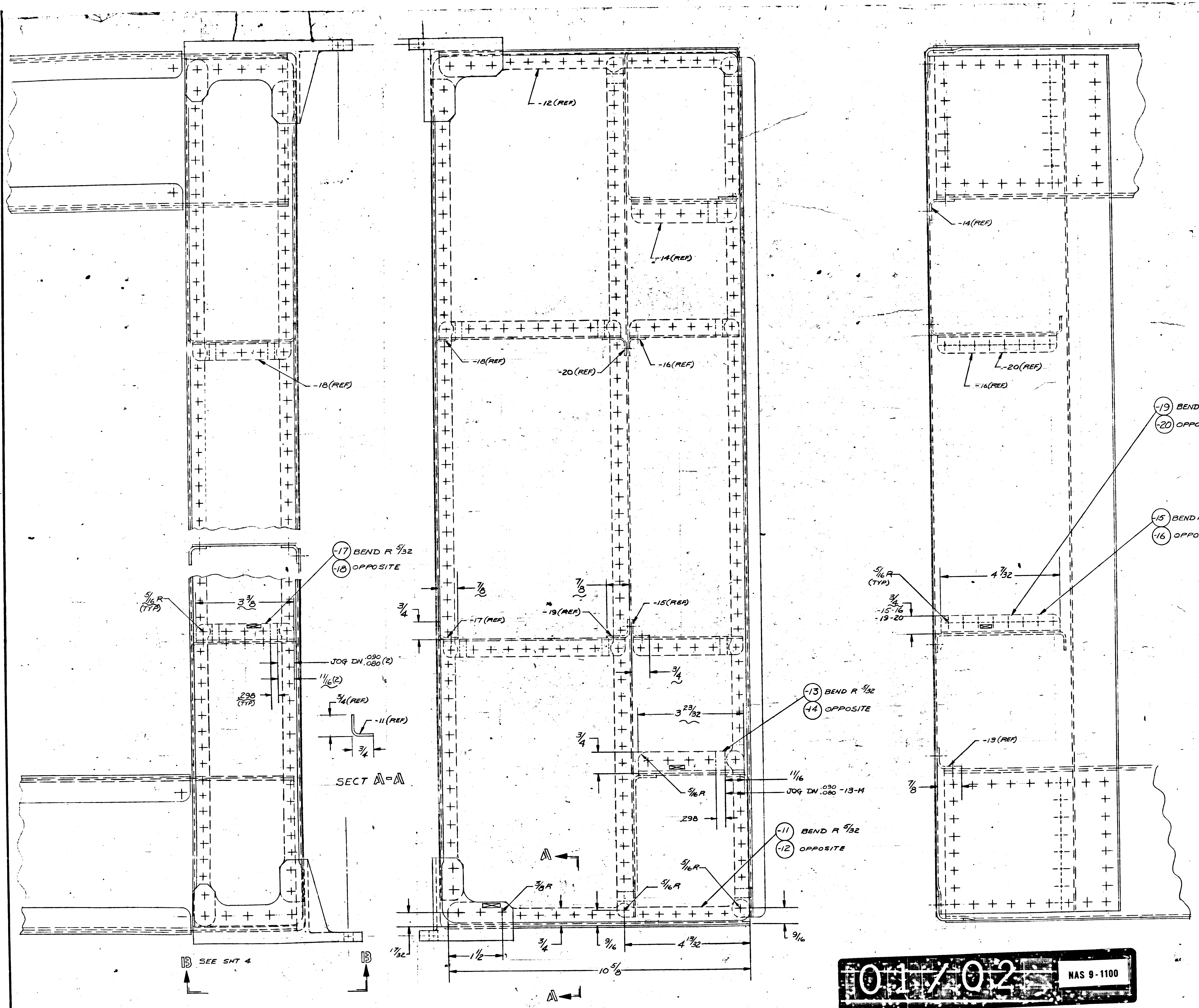
SCALE NONE

SHEET 2.0C

ENG 77.2 5-64

01

NAS 9-1100


-12(REF)
-14(REF)
-18(REF)
-20(REF)
-16(REF)
-18(REF)
-14(REF)
-20(REF)
-16(REF)
-19 BEND R 5/32
-20 OPPOSITE
-15 BEND R 5/32
-16 OPPOSITE
-17 BEND R 5/32
-18 OPPOSITE
5/16 R (TYP)
3 3/8
JOG DN .090/.080 (2)
11/16 (2)
.298 (TYP)
3/4 (REF)
-11 (REF)
3/4
SECT A-A
7/8
3/4
-17 (REF)
7/8
-19 (REF)
-15 (REF)
3/4
3 23/32
-13 BEND R 5/32
-14 OPPOSITE
3/4
11/16
5/16 R
JOG DN .090/.080 -13-14
.298
-11 BEND R 5/32
-12 OPPOSITE
5/16 R
5/16 R
3/8 R
A
17/32
1 1/2
3/4
9/16
4 13/32
9/16
10 5/8
A
B SEE SHT 4
B
5/16 R (TYP)
3/4
-15-16
-19-20
4 7/32
-13 (REF)
7/8
-14(REF)

NOTES

1. ALL
FOR
1844
IS F
2. NO TO

LAYOUT REL
ON PRODU

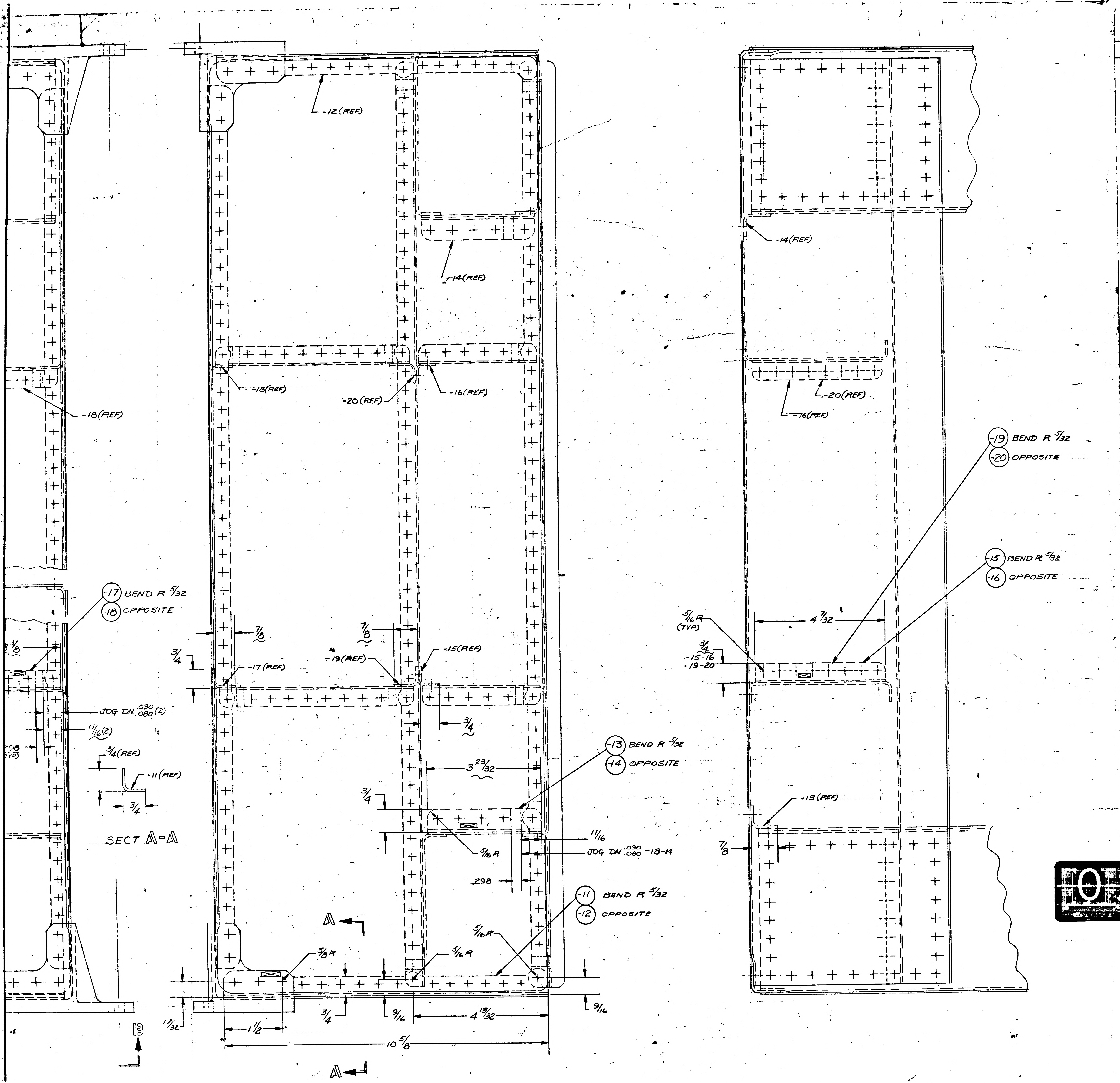
LM

MODEL OR EM

THIS IS AN

01 / 02

NAS 9-1100


-12 (REF)
-14 (REF)
-18 (REF)
-20 (REF)
-16 (REF)
-17 BEND R 5/32
-18 OPPOSITE
JOG DN .090/.080 (2)
11/16 (2)
3/4 (REF)
-11 (REF)
3/4
SECT A-A
7/8
3/4
-17 (REF)
-19 (REF)
-15 (REF)
3/4
3 23/32
-13 BEND R 5/32
-14 OPPOSITE
5/16 R
11/16
JOG DN .090/.080 -13-14
.298
-11 BEND R 5/32
-12 OPPOSITE
3/8 R
5/16 R
5/16 R
17/32
3/4
9/16
4 13/32
9/16
1 1/2
10 5/8
A
A
B
-14 (REF)
-20 (REF)
-16 (REF)
-19 BEND R 5/32
-20 OPPOSITE
-15 BEND R 5/32
-16 OPPOSITE
5/16 R (TYP)
4 7/32
3/4
-15-16
-19-20
-13 (REF)
7/8

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY

LDW280-18449

NOTES

1. ALL INFORMATION NOT REQUIRED FOR MANUFACTURE OF LDW280-18449-11,-12,-13,-14,-15,-16,-17,-18,-19 & -20 IS FOR REF ONLY
2. NO TOOLING HOLES PERMITTED IN PARTS

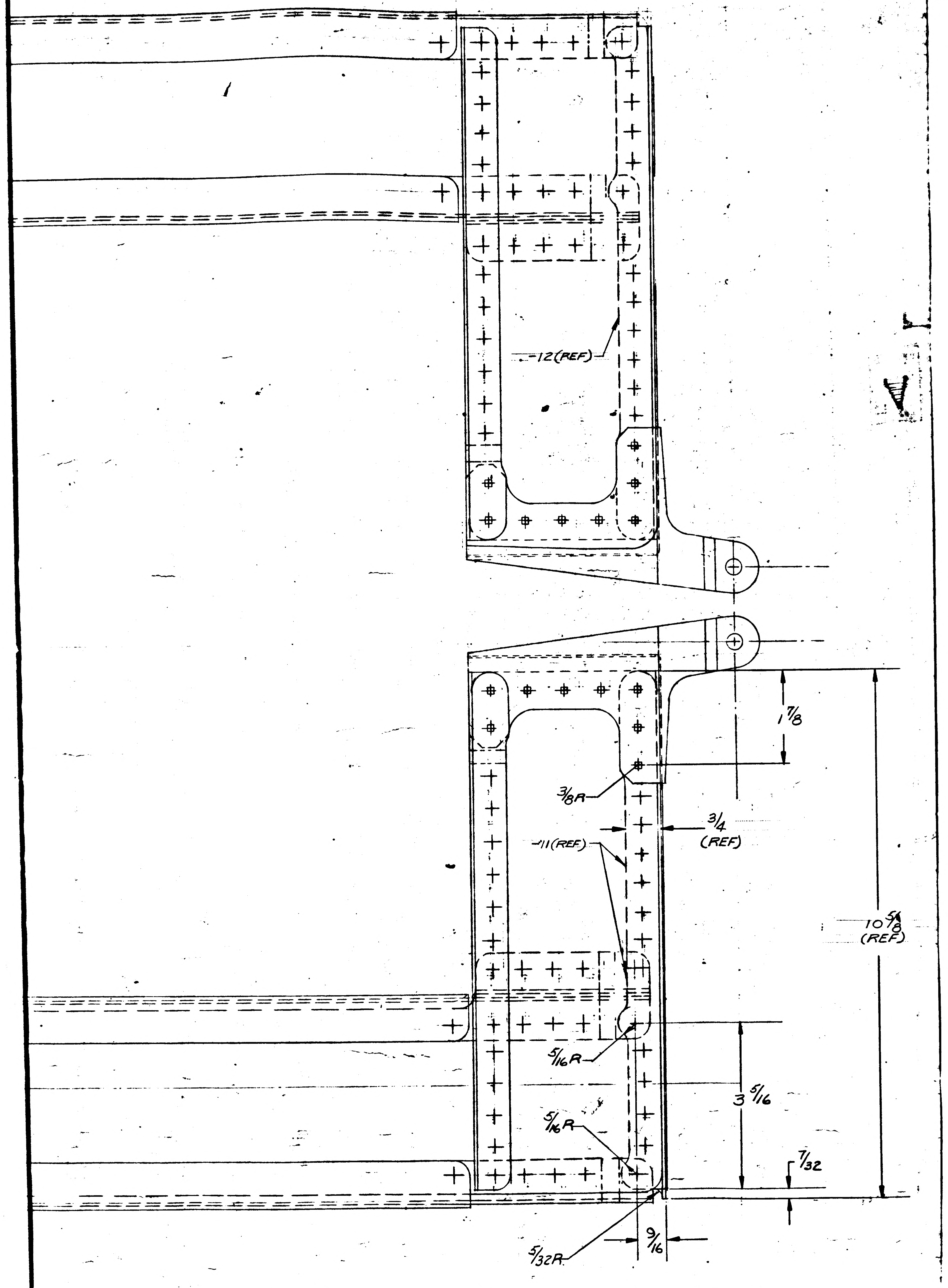
02/Q2 NAS 9-1100

LDW280-18449

LAYOUT RELEASE MAY BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18449	
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

THIS IS AN ORIGINAL DRAWING



VIEW B-B

01 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

LDW280-18449

LDW280-18449

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-18449	
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

THIS IS AN ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 977
CONTROL NO. LDW280B 3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING No.	TITLE	CHANGE No.	
LDW280M17830	SEE DWG.	A2	✓
M17831		A2	✓
M17836		A6	✓
M17853		A2	✓
-18445		A2	✓
-18446		A2	✓
-18447		A1	✓
-18448		A2	✓
-18449		A1	✓
-18450		A4	
LDW280-18456	SEE DWG	A3	

LFM

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1021-37 PKG. 3 (REV. A)	(5)

REASON FOR EO: UPDATE LTA-3 MESS. BOX TO LM-5 -LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: JK 5/22/68

MODEL	EFFECTIVITY		
	EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQ'D	DATE	5/11/68			5-11-68	5/14/68		5/14/68	5-24-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 9..1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1004
CONTROL INFO NO. LDW280B3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4 ✓
-18446		A3 ✓
-18447		A2 ✓
-18448		A3 ✓
-18449		A2 ✓
-18450		A5
M17830		A3
M17831		A3
M17853		A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2502 PKG 2 CCA 857

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C — VC 6/10/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY	JGB			PJT	WB		JAP	LM
DATE	5/27/68			5-24-68	5/24/68		5/27/68	6-10-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1004

CDR 5/31/68
ISSUED BY F. MADDEN / P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1017
CONTROL INFO NO. LDW280E[illegible]639

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8. *USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446	↑	A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853	↓	A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3128 PKG 2

(5)

GAEC C EO RELEASE 6/22/68

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REWORK ☐ REQ'D SCRAP ☐

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COVT~~
APPROVED BY								
DATE	5/27/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18450 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	LM-4(34)	1 EA
LM	LDW280-23518	DESIGN VERIFICATION (70)	1 EA
LFM130	LDW280-23518	LTA-8(18)	1 EA
LM	LDW280-23518	LTA-3(13)	1 EA

PART NO. LDW280-18450-11, -12, -15, -17

GAEC SCH NO. 50

WORK PACKAGE FUNCTION NO. 111 (5)

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED D

LAST DASH NO. USED -17

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-1A-4/11/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD2011(CCA668)

DRAWN BY		RELIB.	
LAYOUT BY	F. MADDEN		
CHECKED BY	12-8-67		
GP LEADER	12-5-67		
VDI	12/6		
STRUCT.	12/7/6	PROJ ENGR	12/7/67
STRUCT	12/7	REL GROUP	12-9-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ QUAD IV
EQUIPMENT STOWAGE PALLET

SIZE B | CODE IDENT NO. 26512 | LDW280-18450 | A

SCALE NONE | SHEET 1 OF 4

ENG 77.1 12-65

CDR 12-8-67

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00							INC EO A1, ADDED SH. 1.10	LTA-3D			W. VAN VORST 4-1-69		
	2	3.00							INC EO A2						
	3	3.00							INC EO A3						
	4	1.00		LFM-130					INC LEO 280-977	LTA-8					
	5	1.00		S					INC LEO 280-1004	LM-4					
	6	1.00		Ⓡ					INC LEO 280-1017	D.V.T. (70)	4-10-69	N.D.			

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18450	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18450-15	E		ANGLE	AL. ALLOY SH.	QQ-A-250/12	7075	.080 X 2 X 8	T6	88	
	-17	↕		↕	↕	↕	↕	.080 X 11 X 11	↕	↕	
	-12	↕						.080 X 2 X 11			
	LDW280-18450-11	E		ANGLE	AL. ALLOY SH.	QQ-A-250/12	7075	.080 X 2 X 11	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

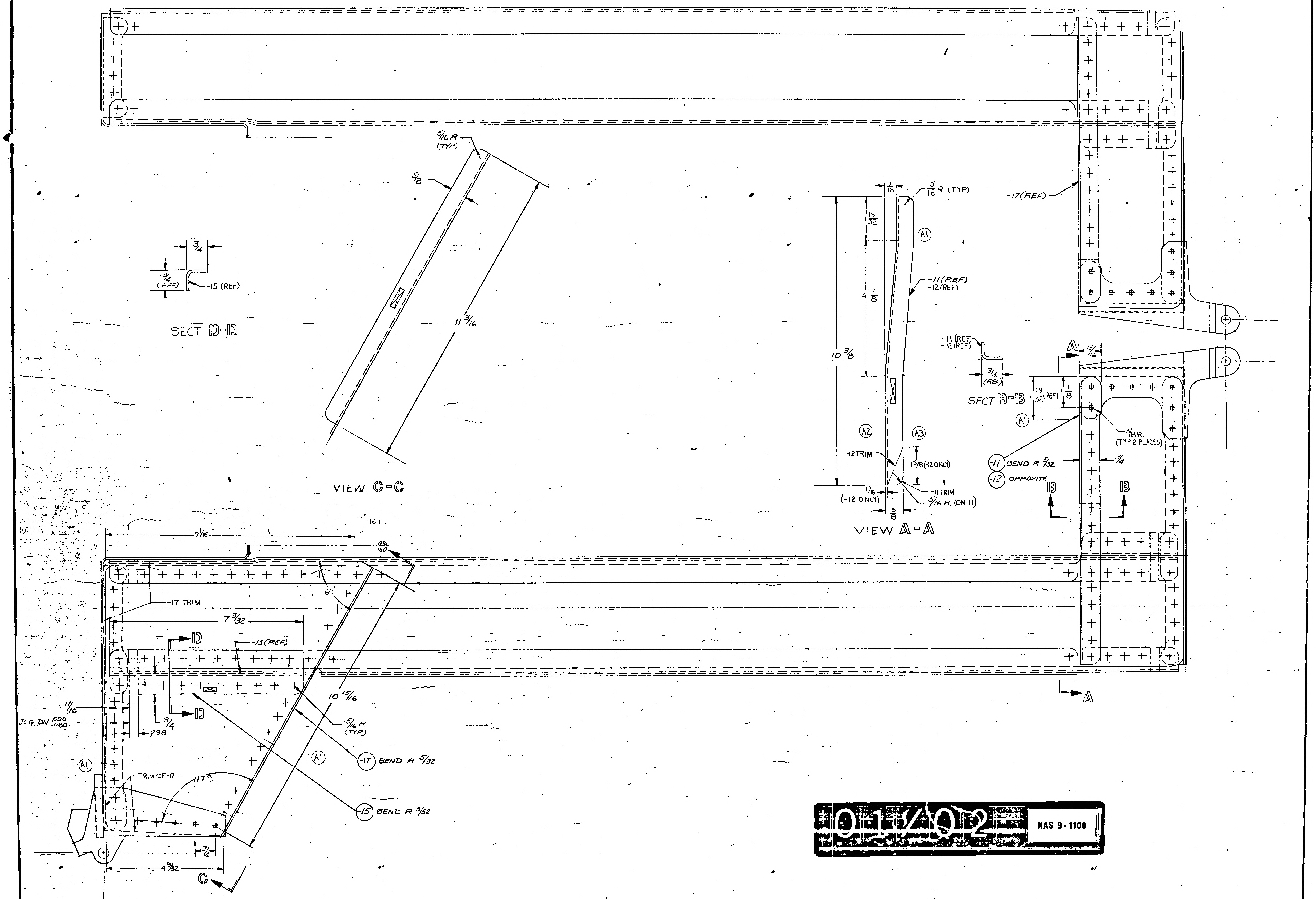
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18450
A Ⓐ
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

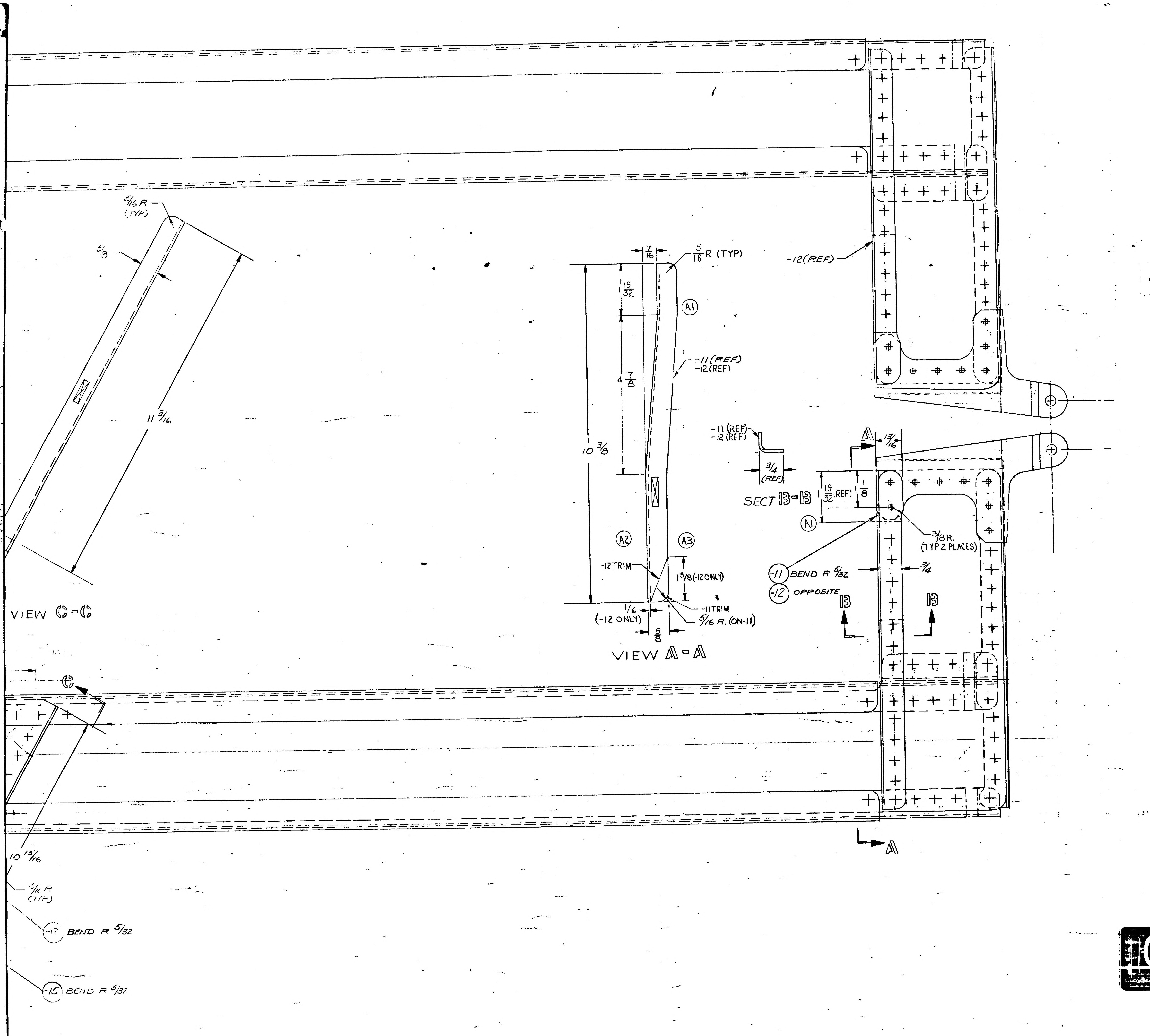
01

NAS 9-1100



5/16 R (TYP)
5/8
11 3/16
VIEW C-C
3/4
3/4 (REF)
-15 (REF)
SECT D-D
7/16
5/16 R (TYP)
19/32
A1
4 7/8
-11 (REF)
-12 (REF)
10 3/8
A2
A3
-12 TRIM
1 3/8 (-12 ONLY)
1/16 (-12 ONLY)
-11 TRIM
5/16 R. (ON-11)
5/8
VIEW A-A
-12 (REF)
-11 (REF)
-12 (REF)
3/4 (REF)
SECT B-B
A
13/16
19/32 (REF)
1/8
A1
3/8 R. (TYP 2 PLACES)
-11 BEND R 5/32
-12 OPPOSITE
B
B
3/4
A
9/16
C
60°
-17 TRIM
7 3/32
D
-15 (REF)
11/16
JCG DN .090 .080
3/4
D
.298
10 15/16
5/16 R (TYP)
A1
A1
-17 BEND R 5/32
TRIM OF -17
117°
-15 BEND R 5/32
3/4
4 9/32
C

01/02 NAS 9-1100


5/16 R (TYP)
5/8
11 3/16
VIEW C-C
7/16
5/16 R (TYP)
19/32
A1
4 7/8
-11 (REF)
-12 (REF)
10 3/8
A2
A3
-12TRIM
1 3/8 (-12 ONLY)
-11TRIM
1/16 (-12 ONLY)
5/16 R. (ON-11)
5/8
VIEW A-A
-12 (REF)
-11 (REF)
-12 (REF)
3/4 (REF)
SECT B-B
A
13/16
1 19/32 (REF)
1/8
A1
3/8 R. (TYP 2 PLACES)
-11 BEND R 5/32
-12 OPPOSITE
3/4
B
B
C
A
10 15/16
5/16 R (TYP)
-17 BEND R 5/32
-15 BEND R 5/32

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R + .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)=
SQ. FT.
PRINT TRIM LINE

NOTES

1. ALL INFORMATION NOT REQUIRED FOR MANUFACTURE OF LDW280-18450-11, -12, -17 & -15 IS FOR REF ONLY

LDW280-18452

02/02

NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION

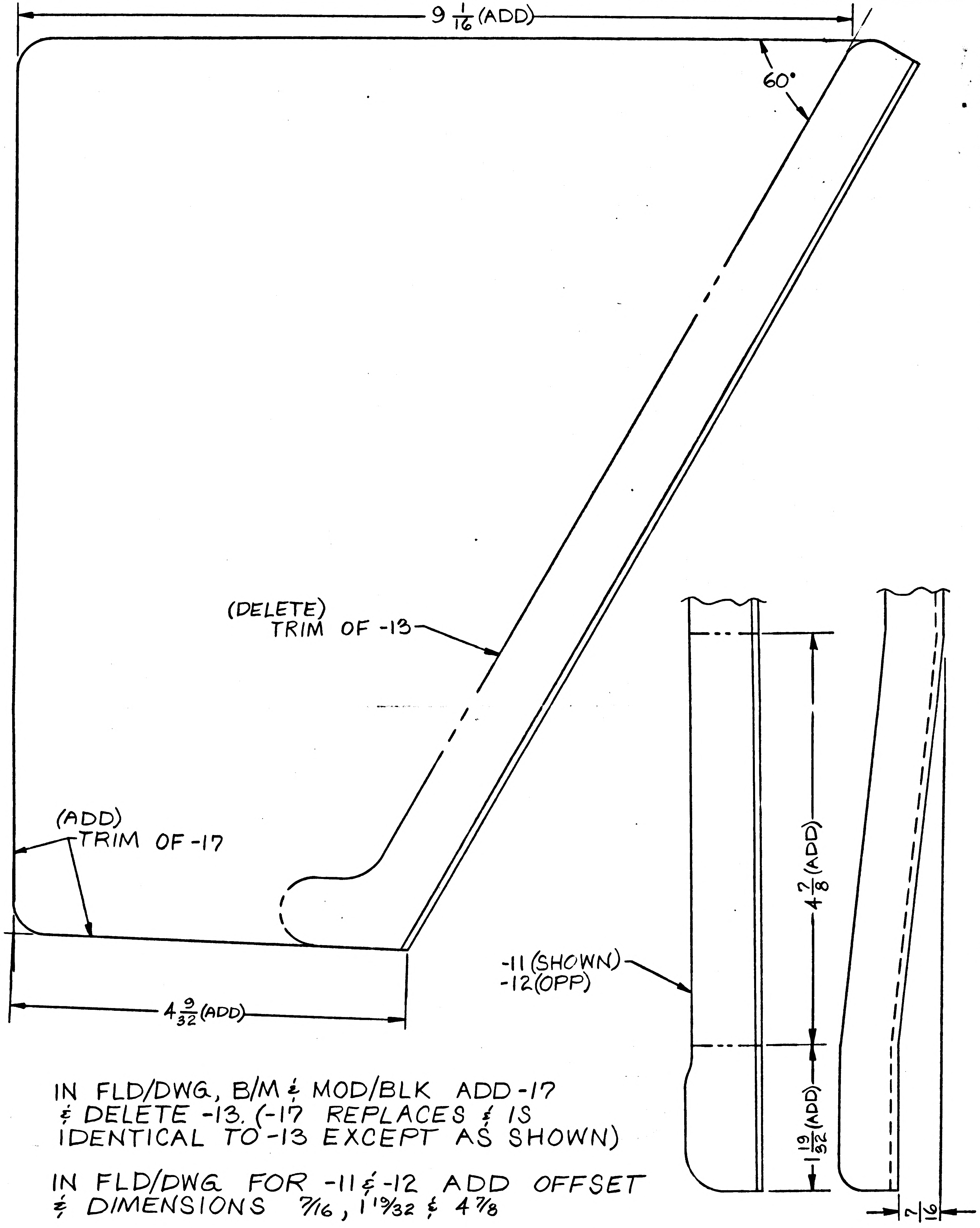
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-18450	A
LM				
MODEL OR END ITEM	SCALE FULL		SHEET	

THIS IS AN ORIGINAL DRAWING

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18450		EO NO.	A1
CONTROL INFO NO.	LM-2-4395		



IN FLD/DWG, B/M & MOD/BLK ADD -17 & DELETE -13. (-17 REPLACES & IS IDENTICAL TO -13 EXCEPT AS SHOWN)

IN FLD/DWG FOR -11 & -12 ADD OFFSET & DIMENSIONS 7/16, 1 19/32 & 4 7/8

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 CCA668	(2)

REASON FOR EO: ELIMINATE INTERFERENCE AT ASSY & REPLACE DELETED WEB MATERIAL.

DESCRIPTION OF EO: IN FLD/DWG, B/M & MOD/BLK, ADDED -17 REPLACING -13. IN FLD/DWG FOR -11 & -12 ADDED DIMENSIONS 7/16, 1 19/32 & 4 7/8.

GAEC EO RELEASE: JIC

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-13 SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JMS			—	MBS	CH	JAP	
DATE	1/12/68			—	1/18/68	1/18/68	1/24/68	1-19-68

PRIORITY: C

DRAWING TITLE: ANGLE-DESCENT STAGE-QUAD IV EQUIPMENT STOWAGE PALLET

DRAWING NO.: LDW280-18450

EO NO.: A1

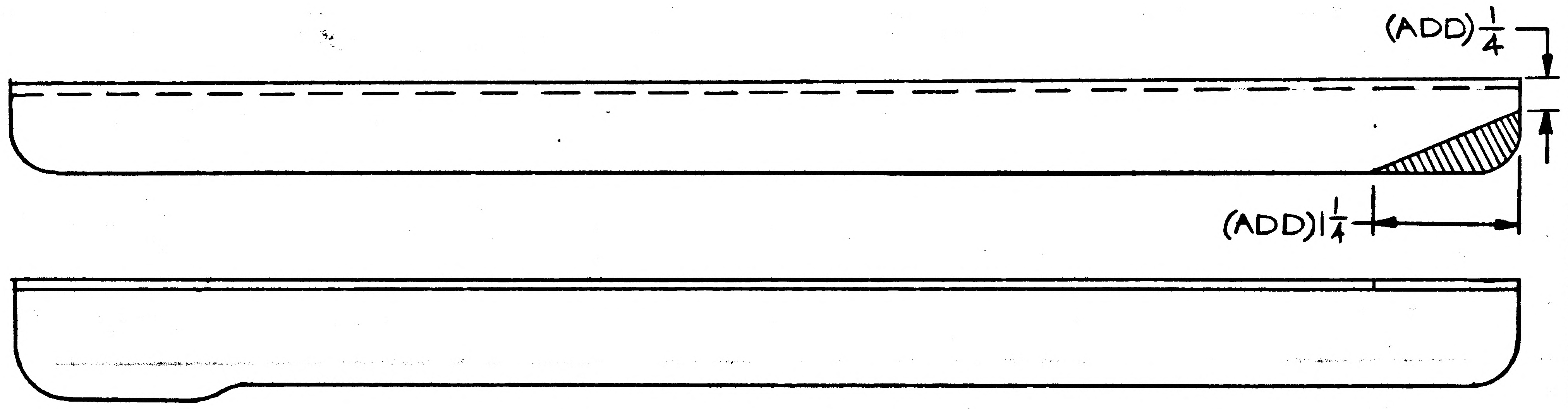
ISSUED BY LIAISON J. MALONEY 1/1/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18450	EO NO.	A2
CONTROL INFO NO.	LM-2-4522		



LDW280-18450-12

IN FLD/DWG FOR -12, ADD 1¼ & ¼ DIMENSIONS
FOR REWORK OF EXISTING PARTS, REFINISH TRIMMED AREA #76

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2011 CCA 668 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ELIMINATE INTERFERENCE WITH SIDE PANEL STIFFENER AT NEXT ASSEMBLY	FOR -12, IN FLD/DWG ADDED 1¼ & ¼ DIMENSIONS	C 92025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D (13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	2/29				2/21/68	2/[illegible]/68	2/29/68
	VDI	SUPPORT	RELIAB. GROUP				

2/23/68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE~DESCENT STAGE~QUAD IV EQUIPMENT STOWAGE PALLET	LDW280-18450	A2

ISSUED BY LIAISON J. MALONEY 2/21/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

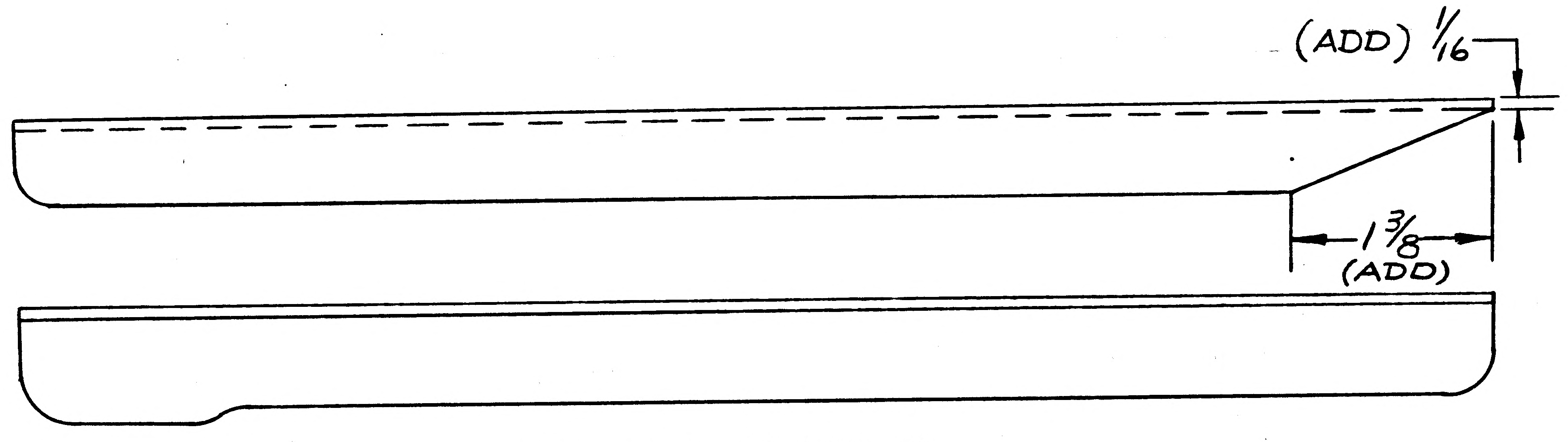
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18450
EO NO. A3
CONTROL INFO NO. LDW280B2853



LDW280-18450-12

IN FLD/DWG FOR-12, ADD 1 3/8 & 1/16 DIMENSIONS
FOR REWORK OF EXISTING PARTS, REFINISH TRIMMED AREA PER FIN. #76

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD2011 CCA668 PKG 20 ⑤

REASON FOR EO
ADDITIONAL CLEARANCE REQ'D TO ELIMINATE INTERFERENCE WITH SIDE PANEL AT NEXT ASSY

DESCRIPTION OF EO
FOR-12, IN FLD/DWG ADDED 1 3/8 & 1/16 DIMENSIONS

GAEC • C EO RELEASE: H.F 4/2/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA3D(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓ -12	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JAS				WJH			
DATE	4/1/68			4-2-68	4/2/68	4/2/68		4-2-68

PRIORITY: C
DRAWING TITLE: ANGLE ~ DESCENT STAGE ~ QUAD IV EQUIPMENT STOWAGE PALLET
DRAWING NO.: LDW280-18450
EO NO.: A3

4/2 ISSUED BY F. MADDEN/P. THORJUSEN X1153 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 977
CONTROL INFO NO. LDW280B.3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING NO.	TITLE	CHANGE NO.	
LDW280M17830	SEE DWG.	A2	✓
M17831		A2	✓
M17836		A6	✓
M17853		A2	✓
-18445		A2	✓
-18446		A2	✓
-18447		A1	✓
-18448		A2	✓
-18449		A1	✓
-18450		A4	✓
LDW280-18456	SEE DWG	A3	

LFM

*USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1021-37 PKG. 3 (REV. A) (5)

REASON FOR EO: UPDATE LTA-3 MESS BOX TO LM-5 -LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: C JK 5/22/68

MODEL	EFFECTIVITY EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK; SCRAP
APPROVED BY / DATE: 5/11/68 VDI; SUPPORT; RELIAB. GROUP; GROUP LEADER 5-11-68; STRESS GROUP 5/14/68; LIAISON ENGRG; PROJ ENGRG 5/14/68; 5-24-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG ..1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1004
CONTROL INFO NO. LDW280B3587

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD LM-4(34) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-8.

DRAWING NO	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A4
-18446		A3
-18447		A2
-18448		A3
-18449		A2
-18450		A5
M17830		A3
M17831		A3
M17853		A3
LDW280-23518	SEE DWG	A4

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ LCD 2502 PKG 2 CCA 857 (5)

REASON FOR EO: TO USE MASS SIMULATION MESS BOX ON LM-4

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LM-4(34)

GAEC EO RELEASE: C VC 6/10/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY: VDI 5/27/68 | SUPPORT | RELIAB. GROUP | GROUP LEADER 5-24-68 | STRESS GROUP 5/24/68 | LIAISON ENGRG | PROJ ENGRG 5/27/68 | 6-10-68

DATE: S

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1004

CDR 5/31/68
ISSUED BY F. MADDEN/ P. THORJUSEN X1153 SECTION VEH. DES. INT GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 RE 3-65

DWG. NO. LEO 280 | EO NO. 1017
CONTROL INFO NO. LDW280B3639

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY ¢ N/A TO REMAIN SAME AS ON LTA-8.

*USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446		A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853		A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3128 PKG 2

GAEC EO RELEASE (5) C 6/22/68

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQ'D SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
DATE	5/27/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO 280 | EO NO.: 1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18451

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23543	LM-15(45	1EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
		LM-4(34)	
LM	LDW280-23543	LTA-3(13)	1EA
PART NO. LDW280-18451-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54534	LM-15(45)	1EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36	
		LM-5(35)	
	LDW280-54534	LM-4(34)	
LM	LDW280-23534	LTA-3(13)	1EA
PART NO. LDW280-18451-13-15 -17-19		GAEC SCH NO. 51	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (51

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED ~

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK(001) mp-16-11/13/67 CK

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
S ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011(CCA 668)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A BISHOP 10-25-67	RELIABILITY	
LAYOUT BY	E COMISKEY		
CHECKED BY	J Kartzmar 10-27-67		
GR LEADER	Thoyrson 11-1-67		
VEH DES INT	11/1/67		
STRUCTURE	WDD W/M 11/8/67	PROJ ENGR	
STRUCTURE	11/10	REL GROUP	11/10/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~MODULARIZED
EQUIPMENT SUPPORT~LOWER

SIZE B CODE IDENT NO. 26512 LDW280-18451 —

SCALE NONE SHEET 1.00 OF 3

CDR 11-3-67

77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18451-19	E		PLATE	AL ALLOY SH	QQ-A-250/4	2024	.063X2X4	T42	88	
	-17			ANGLE				.050X3X3			
	-15							.050X2X4			
	-13							.050X3X3			
	LDW280-18451-11	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.071X4X8	T42	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18451
SCALE NONE
SHEET 2.00

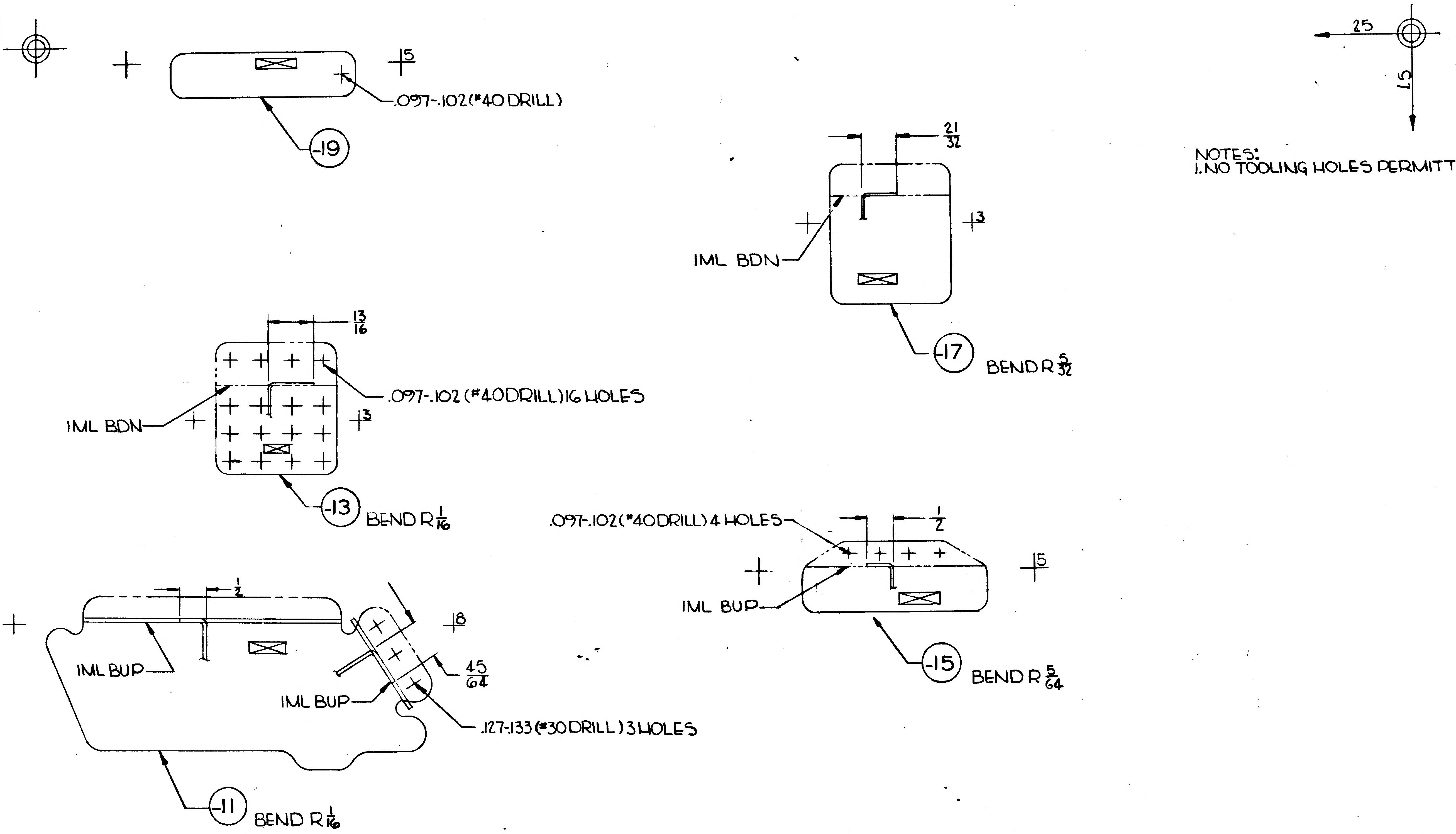
ENG 77.2 5-64

01

NAS 9-1100

LDW280-18451

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ±1/32	✓


-19
.097-.102(#40 DRILL)
.15
21/32
IML BDN
.3
-17
BEND R 5/32
13/16
.097-.102 (#40DRILL)16 HOLES
IML BDN
.3
-13
BEND R 1/16
.097-.102(#40DRILL) 4 HOLES
1/2
.15
IML BUP
-15
BEND R 5/64
1/2
.18
45/64
IML BUP
IML BUP
.127-.133(#30DRILL)3 HOLES
-11
BEND R 1/16
25
.15

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18451
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18451 EO NO. A1
CONTROL INFO NO. LM-5-17323

ON-11

IN FLD/DWG:

BEND R $\frac{1}{16}$ S/B BEND R $\frac{3}{32}$

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II G CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
$\frac{1}{16}$ R CANNOT BE ACCOMPLISHED ON .071 THICK MATL.	ON-11 IN FLD/DWG BEND R $\frac{3}{32}$ WAS: BEND R $\frac{1}{16}$	(5) ✓ .046

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	LTA-3(13)
		THRU-	
		LM-15(95)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	12/2/67				11/17/67	11/16/67	12/4/67	11/20/67
REVISE DWG	RECORD EO	REWORK	SCRAP	11-13-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DESCENT STAGE - MODULARIZED EQUIPMENT SUPPORT ~ LOWER ~~ANGLE~~ ANGLE	LDW280-18451	A1

ISSUED BY LIAISON P. HUSTED, 86755 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1339
CONTROL INFO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452	A1	
-18457	A2	
-18458	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1339

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1664
CONTROL INFO NO. LDW280B77[illegible]2

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-23543

PART NO. *	CHANGE NO.	DWG. NOMENCLATURE
LDW280-18443-15	B6	SEE DWG
-18451-11	A3	
M17621-1	A5	
M17622-3	B5	
M17808-11	B2	
-17856-11,-13&-15	A4	
M17462-7	B4	
LDW280M17582-5	A6	SEE DWG

DETAIL SPEC REC ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG.56 Pg 1 (5)

REASON FOR EO: REDESIGN OF LOWER DECK FOR LARGER TANK

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF * BY REMOVING LM-10(40) THRU LM-14(44)

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
LM		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~
APPROVED BY								
DATE	8-19-69			8/11/69	8/1[illegible]/69		8/19/69	9-16-69

GAEC EO RELEASE: 8-22-69; JK 9/16/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1664

10-24-69
ISSUED BY R. BEHAN / P. THORJUSEN x87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1689
CONTROL INFO NO. LDW280B 8467

FOR THE FOLLOWING DRAWINGS & DASH NO'S: *, N/A LDW280-54534, REMOVE LM 10 (40) THRU LM 14 (44) EFF.

DWG. NO.	* DASH NO.	TITLE	CHANGE NO.
LDW280 -18419 ✓	-17, -19	SEE DWG.	A5
-18398 ✓	-13, -15, -16, -21, -25	↓	A6
-18451 ✓	-13, -15, -17, -19	↓	A4
-18452	-11, -13	↓	A3
M17789	-11	↓	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 399 PK 64 (5)

REASON FOR EO: BEAM PANEL REDESIGNED FOR MESA, GOX & H_2O SPRT.

DESCRIPTION OF EO: FOR * N/A LDW280-54534 REMOVE LM10 (14) THRU LM 14 (44) EFF.

GAEC EO RELEASE: SWB 9-23-9; JK 9/23/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU LM14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCMP~~
APPROVED BY					W.M.		H. Dai	
DATE	9/22/69			9-22-69	9/23/69		9/23/69	9/24/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1689

CDR 092669
ISSUED BY A. FURIO 86046 SECTION UDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18452

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54534	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
	LDW280-54534	LM-4 (34)	1 EA
LM	LDW280-23534	LTA-3 (13)	1 EA

PART NO. LDW280-18452-11 &-13
GAEC SCH NO. 51

WORK PKG FUNCTION NO. 110 (5

LINE ITEM
DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REF INFO			
		PRIM NO.	VK(00		
LAST DASH NO. USED	-13	207	12-16-	12/67	

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 ±.020 ± 1/2°
S ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011 CCA668
OK

CONTRACT NO. NAS9-1100

DRAWN BY	J. BIANCHINO 10/31/67	WEIGHTS	
LAYOUT BY	E. COMISKY 11/1/67	RELIABILITY	
CHECKED BY	D. FASS 11-1-67		
GP LEADER	11-1-67		
VEH DES INT	11/1/67		
STRUCTURE	JH 11/1/67	PROJ ENGR	11/1/67
STRUCTURE	FEB 11/10	REL GROUP	11/10/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL-
DESCENT STAGE-MODULARIZED
EQUIPMENT SUPPORT-UPPER

SIZE B
CODE IDENT NO. 26512
LDW280-18452
SCALE NONE
SHEET 1.00 OF 3

CDR 11-3-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18342-13	E		CHANNEL	AL ALLOY SH	QQ-A-250/4	2024	.090 × 4 × 4	T42	88	
	LDW280-18342-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/4	2024	.090 × 4 × 4	T42	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T42	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18452

SCALE NONE

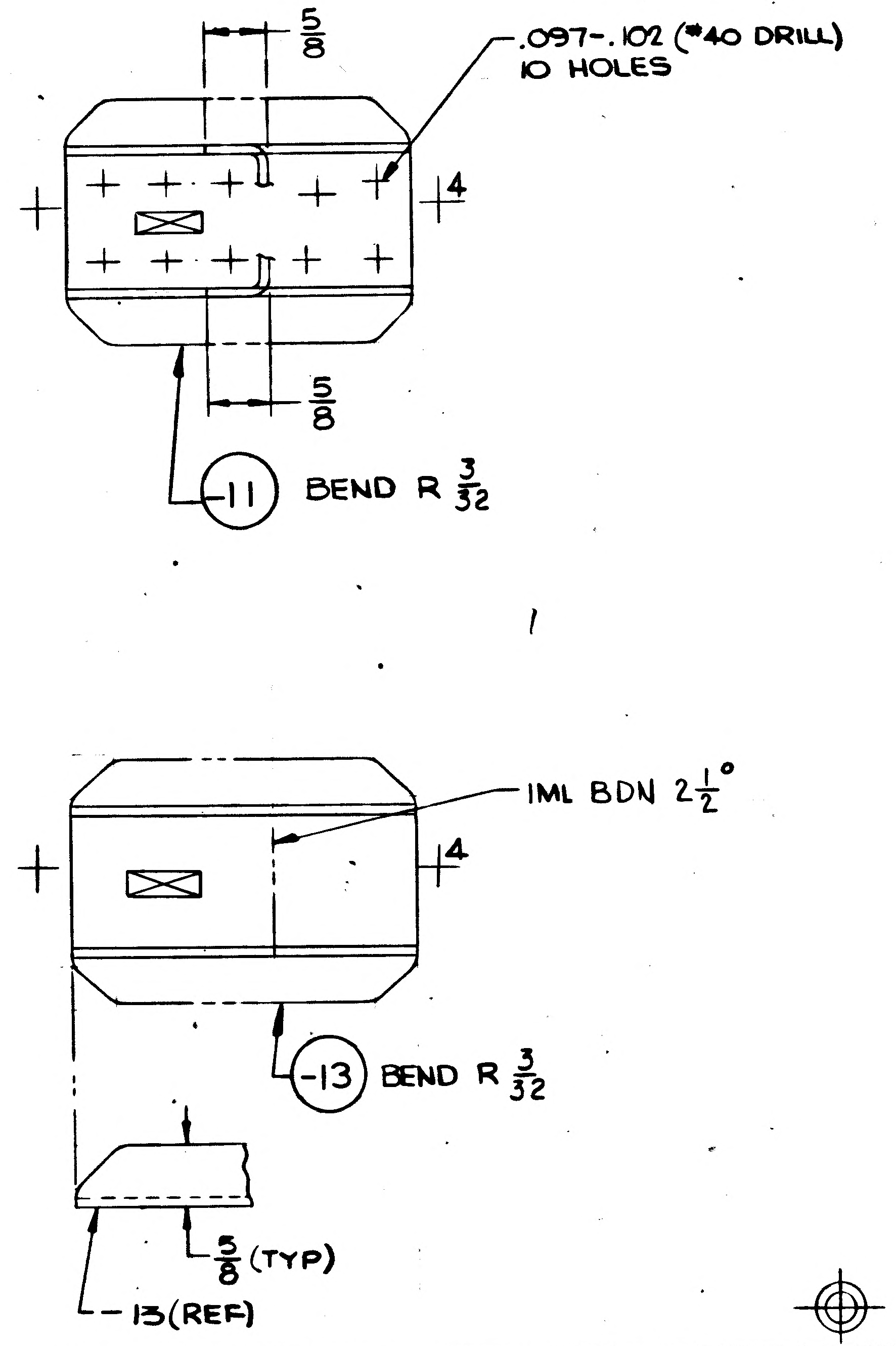
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

TRAM OK T.J. 10-31-67



NOTES:
1- NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.030	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18452
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18452

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452 ✓	A1	
-18457	A2	
-18458	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 35B7 PKG 54 PG 10		CCA 1821 (6)	

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1339

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO 512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1689
CONTROL INFO NO. LDW280 3 8467

FOR THE FOLLOWING DRAWINGS & DASH NO'S : *, N/A LDW280-54534, REMOVE LM 10 (40) THRU LM 14 (44) EFF.

DWG. NO.	DASH NO. *	TITLE	CHANGE NO.
LDW280 -18419 ✓	-17, -19	SEE DWG.	A5
-18398 ✓	-13, -15, -16, -21 -25	↓	A6
-18451 ✓	-13, -15, -17, -19	↓	A4
-18452 ✓	-11, -13	↓	A3
M17789	-11	↓	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 399 £ PK 64 (5)

REASON FOR EO: BEAM PANEL REDESIGNED FOR MESA, GOX & H2O SPRT.

DESCRIPTION OF EO: FOR * N/A LDW280-54534 REMOVE LM10 (14) THRU LM 14 (44) EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU	LM14 (44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	7.DR			PBT	WH		H. Dai	
DATE	9/22/69			9-22-69	9/23/69		9/23/69	9/24/69

GAEC EO RELEASE: SJB 9-23-9; JK 9/23/9

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1689

CDR 092669
ISSUED BY A. FURIO 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18455

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2
PART NO. LDW280-18455-11		GAEC SCH NO. 50	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. JK(001)
207 MP-16-12/14/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
$\pm\frac{1}{32}$ $\pm.010$ $\pm\frac{1}{2}°$

D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY W. LIEFER
LAYOUT BY
CHECKED BY A.F. Manwell 12-6-67
GP LEADER Thorjussen 12-7-67
VEH DES INT 12/8/67
STRUCT 12/12/67
STRUCT EB 12/12/67
Weights
PROJ ENGR 12/8/67
REL GROUP 12/13/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE - SCIENTIFIC EQUIP
MASS SIMULATOR

SIZE B
CODE IDENT NO. 26512
LDW280-18455
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

CDR 12-4-67

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18496-11	E	PLATE	STEEL	MIL-S-18729	4130	.188 x 2 x 3	SHT		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						SHT	HEAT TREAT	SEE NOTE #1

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18455

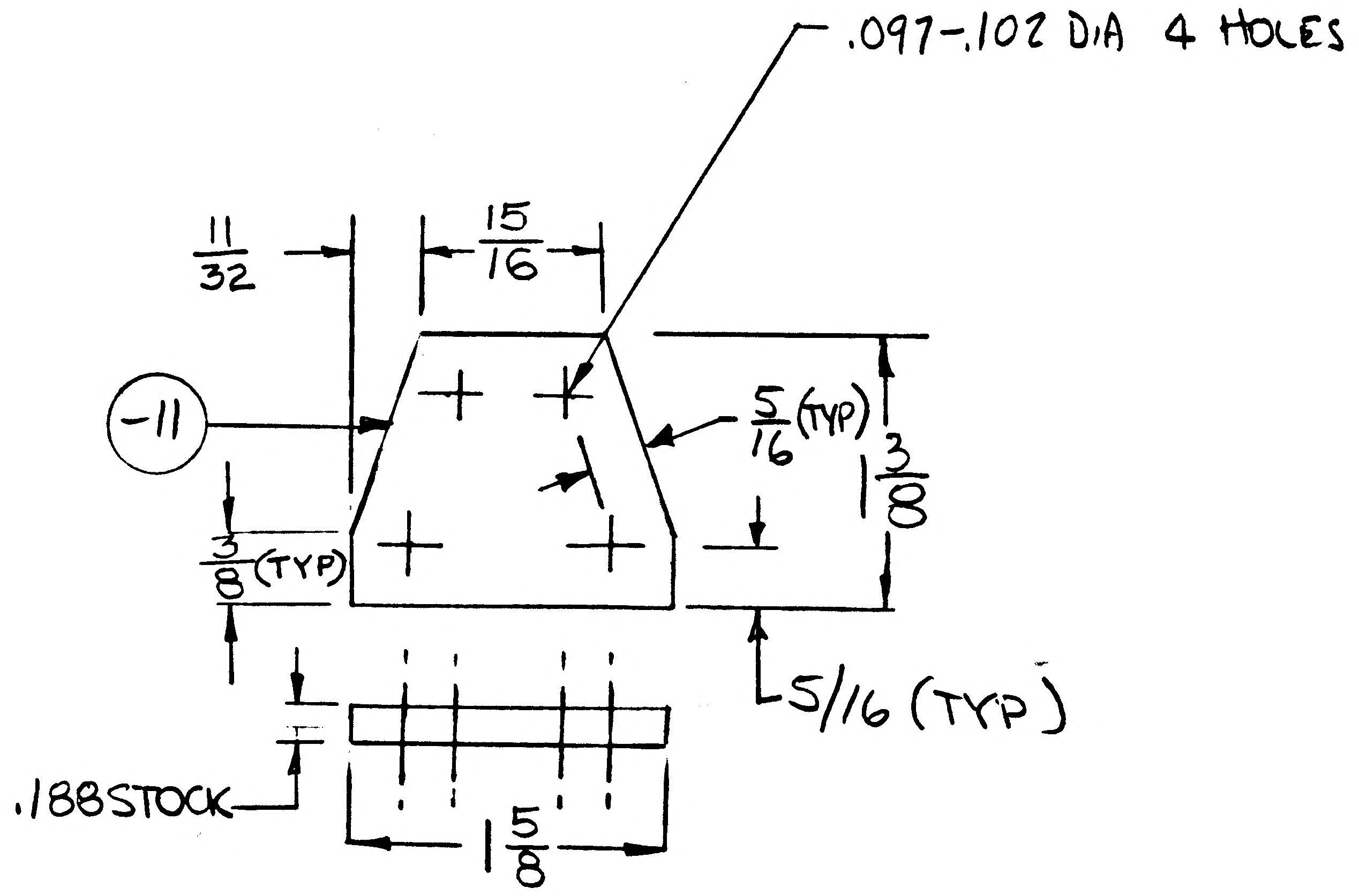
SCALE NONE

SHEET 2

ENG 77.2 7-65

01

NAS 9-1100


.097-.102 DIA 4 HOLES
11/32
15/16
-11
5/16 (TYP)
1 3/8
3/8 (TYP)
5/16 (TYP)
.188 STOCK
1 5/8

NOTE: 1) STEEL HEAT TREAT TO 125,000 psi
ROCKWELL C27-C32
PER LSP-14-5100A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18455	
SCALE		SHEET 3	

ENG 73.1 6-64

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO280
EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11 -13 -15 -18414-17	SEE DWG.	A1
-18455-11		A1
-18479-13 -17 -19 -18479-21		A4
-18480-11 -13 -15 -18480-17		A1
-18481-11 -12 -13 -14 -15 -16 -17 -19 LDW280-18481-20	SEE DWG.	A1

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11 -12 -13 -14 -15 -16 -17 -18 -19 -18482-20	SEE DWG	A1
-18483-11 -13 -14 -15 -17 -18 -18483-19		A2
-18484-11 -12 -13 -18484-15		A1
-18501-17 -19 -20 -13 LDW280-18501-21	SEE DWG	A2

01 NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 PKG. 22	(5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DUT (70) REQMTS.

GAEC EO RELEASE: SK 8/1/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD.	

APPROVED BY	JK			GH.	NM		JP	
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-1-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1100

7-31-68
ISSUED BY J. TAVARES x1392
SECTION VDI
GROUP NO. 280 PL 25

LDW280-18456 A

LFM

LM	LDW280-66518	LM-4(34)	1

PART NO. LDW280-18456-23

LM	LDW280-66518	LM-4(34)	1EA
LM	LDW280-66518	DVT(70)	1EA

PART NO. LDW 280-18456-21

LM	LDW280-23518	LTA-3(13)	1

PART NO. LDW280-18456-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	DVT (70)	3 EA
LFM 130	LDW280-66518	LTA-8(18)	1 EA
LM	LDW280-23518	LTA-3(13)	3 EA

PART NO. LDW280-18456-15 — GAEC SCH NO. 50

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	DVT (70)	4 EA
LFM130	LDW280-66518	LTA-8(18)	1 EA
LM	LDW280-23518	LTA-3(13)	4 EA

PART NO. LDW280-18456-13 — GAEC SCH NO. 50

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	LM-4(34)	1 EA
LM	LDW280-66518	DVT (70)	1 EA
LFM130	LDW280-66518	LTA-8(18)	1 EA
LM	LDW280-23518	LTA-3(13)	1 EA

PART NO. LDW280-18456-11 -1[illegible] — GAEC SCH NO. 50

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV S ATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL^C INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-23	207	ME-1A-4/24/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

D	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD2011 (CCA668)	

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY		RELIABILITY	
LAYOUT BY	F. MADDEN		
CHECKED BY	W. Gowlay		
GR. LEADER	12-12-67		
VEH. DES INT	12/13/67		
STRUCT.	WB W/H 12/15/67	PROJ ENGR	12/13/67
STRUCT	Ep 12/16	REL GROUP	12/14/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BALLAST
DESCENT STAGE ~ QUAD IV
EQUIPMENT STOWAGE PALLET

SIZE	CODE IDENT NO.		
B	26512	LDW280-18456	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-66

OK

CDR 12-8-67

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	SH CHG LTR	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
												REWORK	SCRAP			
										RETRACED SHEET 3.00. NO CHANGE. - LAST REV. NO CHANGE. - SHEET SIZE K, WAS SIZE J. T.Y. LEONG,. AUG. 28, 1968						
A	1	1.00, 2.00, 3.00								INC EO A1	LTA-3			T. LEONG 4-3-69		
	2	2.00, 3.00								INC EO A2	LTA-3D					
	3	2.00								INC LEO 280-997	LTA-8					
	4	2.00, 3.00			LFM 130					INC EO A4	LTA-8					
	5	2.00								INC LEO 280-1017	DVT 70					
	6	1.00 2.00, 3.00			LFM 130				Ⓔ	INC EO A 6	LTA-8, LM-4 QUAL. TEST					

CNG. APP'Y'D	LTR	GROUP LDR	V.D.I.	STRUCT	STRUCT	WEIGHTS	RELIABILITY

FOR CONTINUATION OF REVISIONS SEE SHEET

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18456	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-64

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18456-23	E		BALLAST PLATE	AL. ALLOY SH.	QQ-A-250/4	2024	.190 × 20 × 31	NONE	NONE	
	LDW280-18456-21	E		BALLAST PLATE	AL. ALLOY SH.	QQ-A-250/4	2024	.500 × 30 × 30	NONE	NONE	
	LDW280-18456-19	E		BALLAST PLATE	AL. ALLOY SH.	QQ-A-250/4	2024	.500 X 30 X 30	NONE	NONE	
	↕ -15	↕		↕	↕	↕	↕	.500 X 20 X 31	↕	↕	
	↕ -13	↕		↕	↕	↕	↕	.500 X 20 X 31	↕	↕	
	LDW280-18456-11	E		BALLAST PLATE	AL ALLOY SH.	QQ-A-250/4	2024	.500 X 20 X 31	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

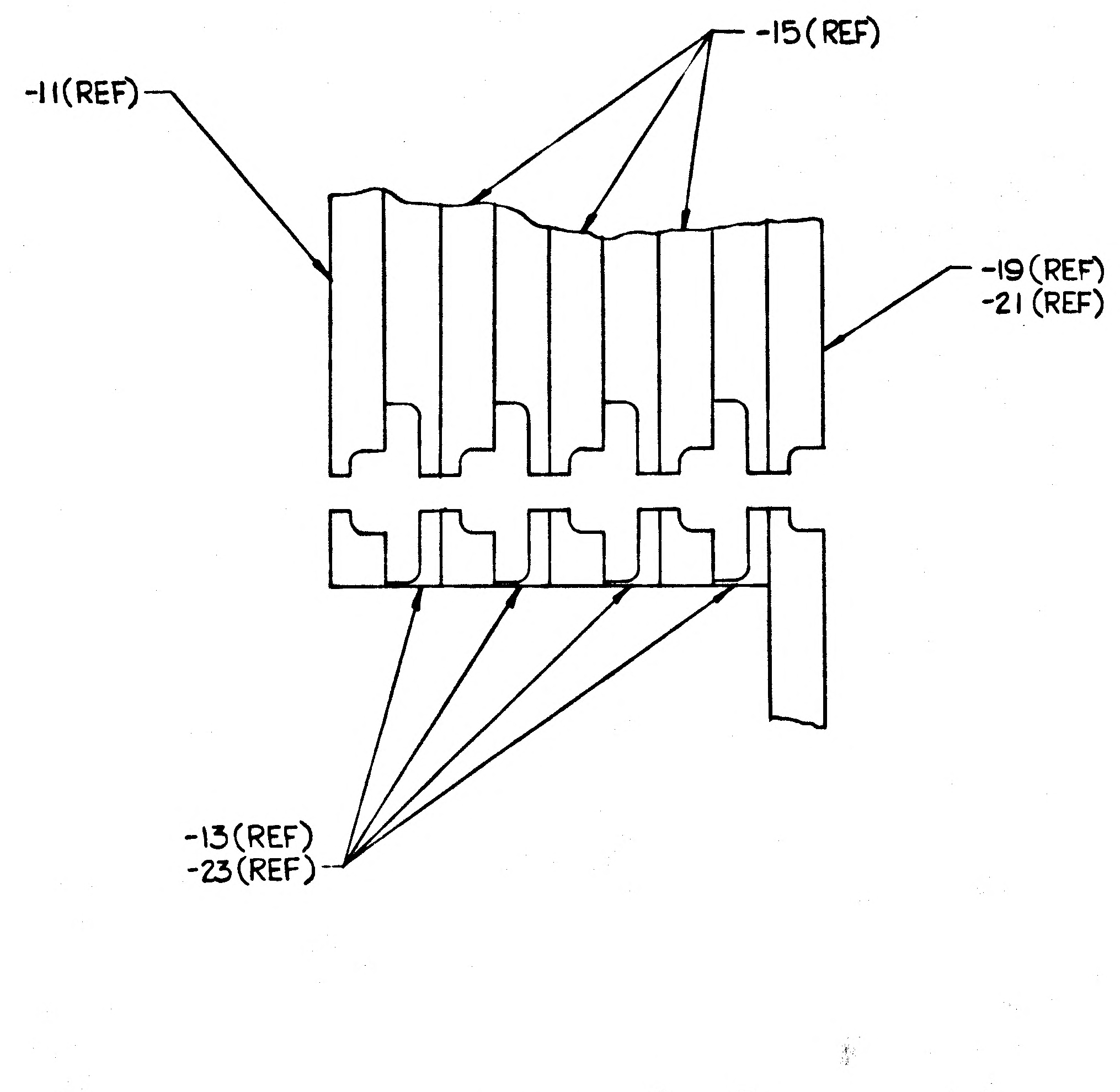
SIZE	CODE IDENT NO.		
B	26512	LDW280-18456	A
SCALE NONE			SHEET 2.00

Ⓐ

ENG 5-64

01

NAS 9-1100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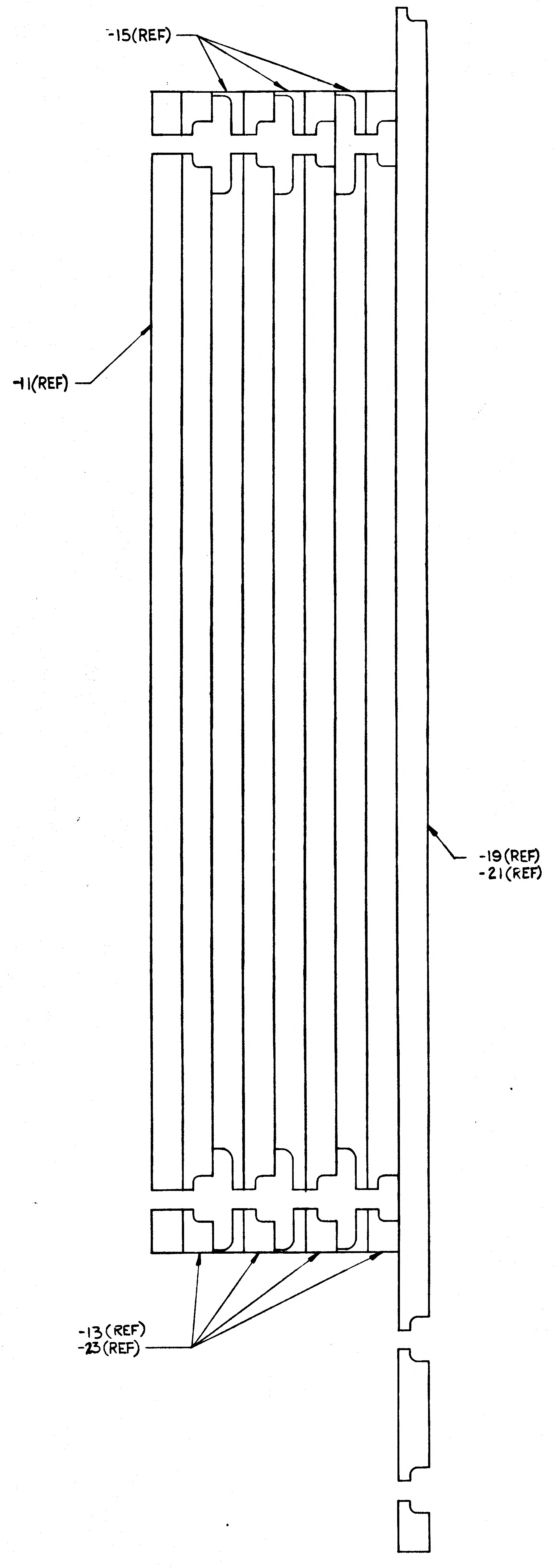
-15(REF)
-19(REF)
-21(REF)
-13(REF)
-23(REF)

SECTION B - B

(ZONE 7B)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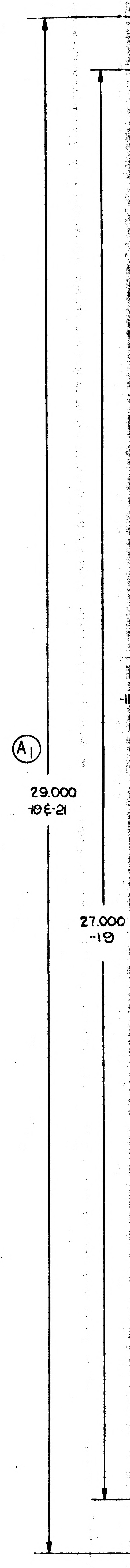
-19(REF)
-21(REF)
-13(REF)
-23(REF)

SECTION A - A

(ZONE 7A)

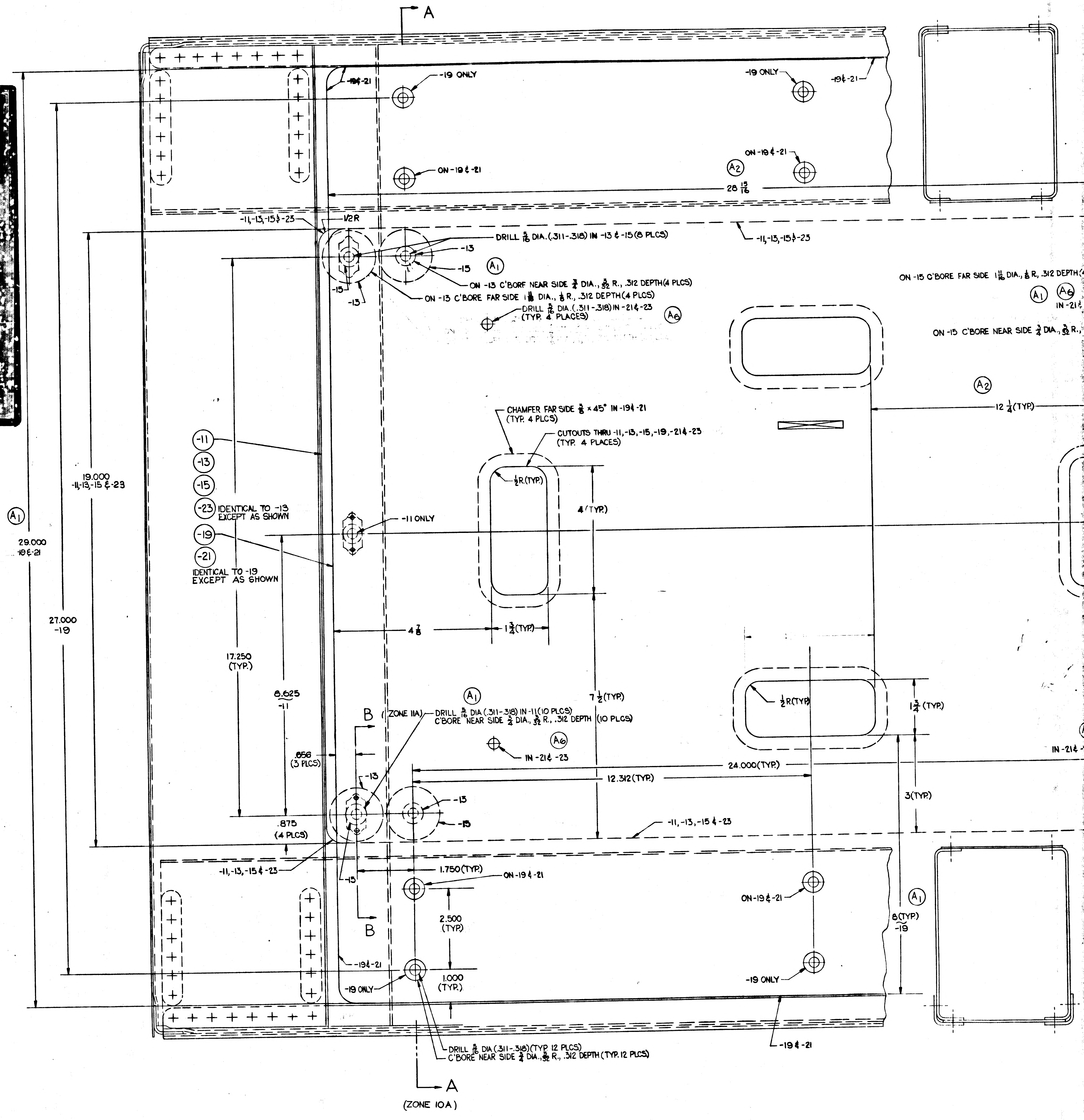

A1
29.000
-19&-21
27.000
-19

01/03 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18456	3

9 1 FRAME FRAME 2

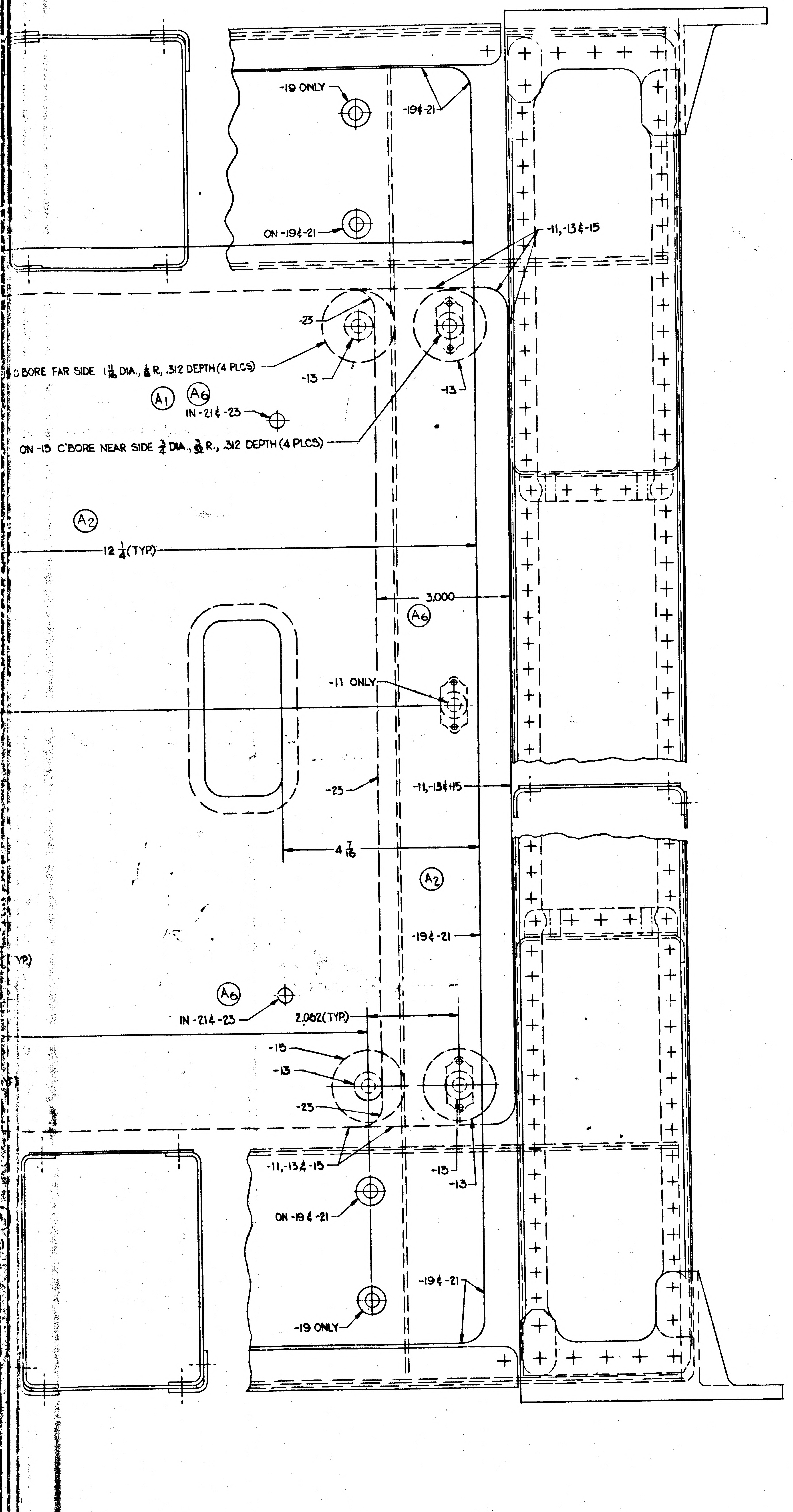
02/03 NAS 9-1100


A
-19 ONLY
-19¢-21
-19 ONLY
-19¢-21
ON-19¢-21
ON-19¢-21
A2
28 15/16
-11,-13,-15¢-23
1/2R
DRILL 5/16 DIA.(.311-.318) IN -13 ¢ -15 (8 PLCS)
-13
-15
A1
ON -13 C'BORF NEAR SIDE 3/4 DIA., 3/32 R., .312 DEPTH(4 PLCS)
ON -13 C'BORE FAR SIDE 1 1/16 DIA., 1/8 R., .312 DEPTH(4 PLCS)
DRILL 5/16 DIA.(.311-.318) IN -21¢-23
(TYP. 4 PLACES)
A6
-11,-13,-15¢-23
ON -15 C'BORE FAR SIDE 1 1/16 DIA., 1/8 R., .312 DEPTH
A1
A6
IN -21¢
ON -15 C'BORE NEAR SIDE 3/4 DIA., 3/32 R.,
A2
12 1/4 (TYP)
A1
29.000
-19¢-21
27.000
-19
19.000
-11,-13,-15 ¢-23
-11
-13
-15
-23 IDENTICAL TO -13
EXCEPT AS SHOWN
-19
-21
IDENTICAL TO -19
EXCEPT AS SHOWN
17.250
(TYP.)
8.625
-11
.656
(3 PLCS)
.875
(4 PLCS)
-11 ONLY
CHAMFER FAR SIDE 3/8 × 45° IN -19¢-21
(TYP. 4 PLCS)
CUTOUTS THRU -11,-13,-15,-19,-21¢-23
(TYP. 4 PLACES)
1/2R(TYP)
4 (TYP.)
4 7/8
1 3/4(TYP)
7 1/2(TYP)
1/2R(TYP)
1 3/4 (TYP)
B
B
(ZONE 11A)
A1
DRILL 5/16 DIA.(.311-.318) IN -11(10 PLCS)
C'BORE NEAR SIDE 3/4 DIA., 3/32 R., .312 DEPTH (10 PLCS)
A6
IN -21¢ -23
24.000(TYP.)
12.312(TYP)
3(TYP)
-13
-13
-15
-15
-11,-13,-15 ¢-23
-11,-13,-15 ¢-23
1.750(TYP)
ON-19¢-21
ON-19¢-21
2.500
(TYP.)
1.000
(TYP.)
-19¢-21
-19 ONLY
-19 ONLY
-19¢-21
A1
8(TYP)
-19
DRILL 5/16 DIA.(.311-.318)(TYP 12 PLCS)
C'BORE NEAR SIDE 3/4 DIA., 3/32 R., .312 DEPTH (TYP. 12 PLCS)
A
(ZONE 10A)
8
7
6
5

CODE IDENT NO. 26512 DWG NO. LDW280-18456 SHEET 3

-18456 SHEET 3

1 FRAME FRAME 2



-19 ONLY
-19¼-21
ON -19¼-21
-11,-13¼-15
-23
-13
C BORE FAR SIDE 1 11/16 DIA., 1/8 R, .312 DEPTH (4 PLCS)
A1
A6
IN -21¼-23
ON -15 C'BORE NEAR SIDE 3/4 DIA., 3/32 R., .312 DEPTH (4 PLCS)
A2
12 1/4 (TYP)
3.000
A6
-11 ONLY
-23
-11,-13¼15
4 7/16
A2
-19¼-21
A6
IN -21¼-23
2.062 (TYP)
-15
-13
-23
-11,-13¼-15
-15
-13
ON -19¼-21
-19¼-21
-19 ONLY

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
MISMATCH STEP OF PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031.	✓
✓ SURFACE ROUGHNESS IN ACCORDANCE WITH ASA B46.1.	
125 ✓ FOR ALL SURFACES	
200 ✓ FOR ALL HOLES.	
GEOMETRIC CHARACTERISTIC SYMBOLS IN ACCORDANCE WITH MIL-STD-8.	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
INSPECTION INFORMATION: MINIMUM PERMISSIBLE EDGE DISTANCE MARKED IS	
ALL DIMENSIONS SHOWN TO BE MET BEFORE CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	

DWG SIZE 40X96

PRINTING INFO ONLY

PRINT TRIM LINE

FULL SIZE SHEET AREA (42 X 104)= 28.0 SQ FT

¼ SIZE SHEET AREA (¼ OF FULL)= 7.0 SQ FT

03/03 NAS 9-1100

LDW280-18456 A

LDW280-18456 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE K	CODE IDENT NO. 26512	LDW280-18456	A
SCALE FULL		SHEET 3.00	

-18456 SHEET 3

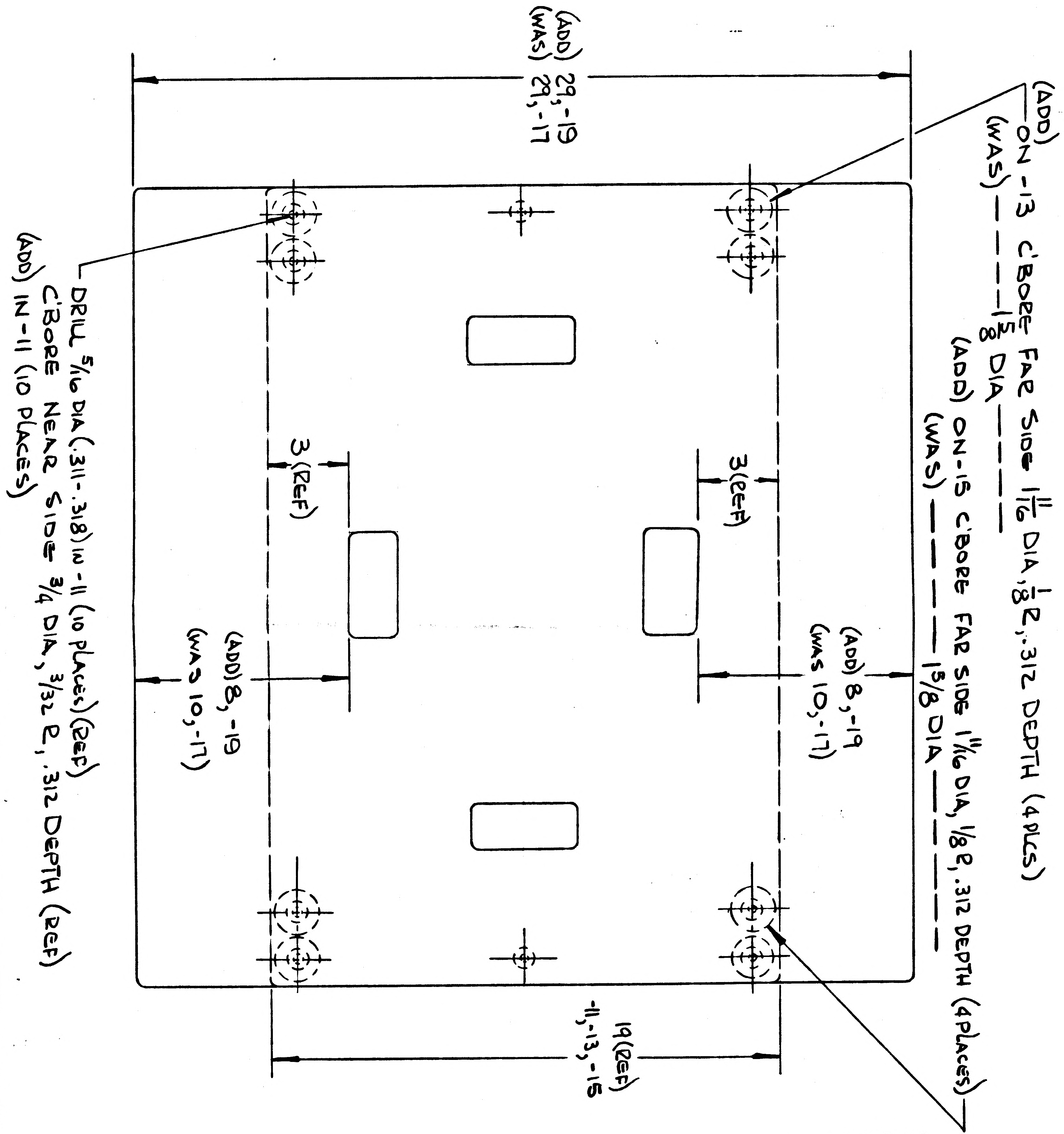
2 ← FRAME FRAME → 3

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18456	EO NO. A1
CONTROL INFO NO. LM-5-17948	

IN F/D & B/M CREATE -19 IDENTICAL TO -17 EXCEPT AS SHOWN
REMOVE -17
IN F/D REVISE AS SHOWN


(ADD) ON -13 C'BORE FAR SIDE 1 11/16 DIA, 1/8 R, .312 DEPTH (4 PLCS)
(WAS) — — — — 1 5/8 DIA — — — —
(ADD) ON-15 C'BORE FAR SIDE 1 11/16 DIA, 1/8 R, .312 DEPTH (4 PLACES)
(WAS) — — — — 1 5/8 DIA — — — —
(ADD) 8, -19
(WAS 10, -17)
3 (REF)
19 (REF)
-11, -13, -15
(ADD) 29, -19
(WAS) 29, -17
3 (REF)
(ADD) 8, -19
(WAS 10, -17)
DRILL 5/16 DIA (.311-.318) IN -11 (10 PLACES) (REF)
C'BORE NEAR SIDE 3/4 DIA, 3/32 R, .312 DEPTH (REF)
(ADD) IN -11 (10 PLACES)

01
NAS 9-1100

RELEASED BY LIAISON

3660

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐

REASON FOR EO: CUTOUTS FOR HAND HOLES SHOULD LINE UP.

DESCRIPTION OF EO: IN F/D & BM ADDED -19, REMOVED -17
IN F/D: FOR -13 & -15 1 11/16 C'BORE WAS 1 5/8 C'BORE,
IN F/D ADDED: IN-11 (10 PLACES)

GAEC EO RELEASE: VC (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3(13)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	DATE	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓			-17	2-1-68	2/1/68 VDI			—	2-1-68	2-1-68	2/1/68

PRIORITY	DRAWING TITLE	DWG NO.	EO NO.
C	BALLAST - DESCENT STAGE - QUAD IV - EQUIP. STOWAGE PALLET	LDW280-18456	A1

ISSUED BY LIAISON V.MAGGIPINTO/86755 SECTION VDI GROUP NO. 280 PL 25

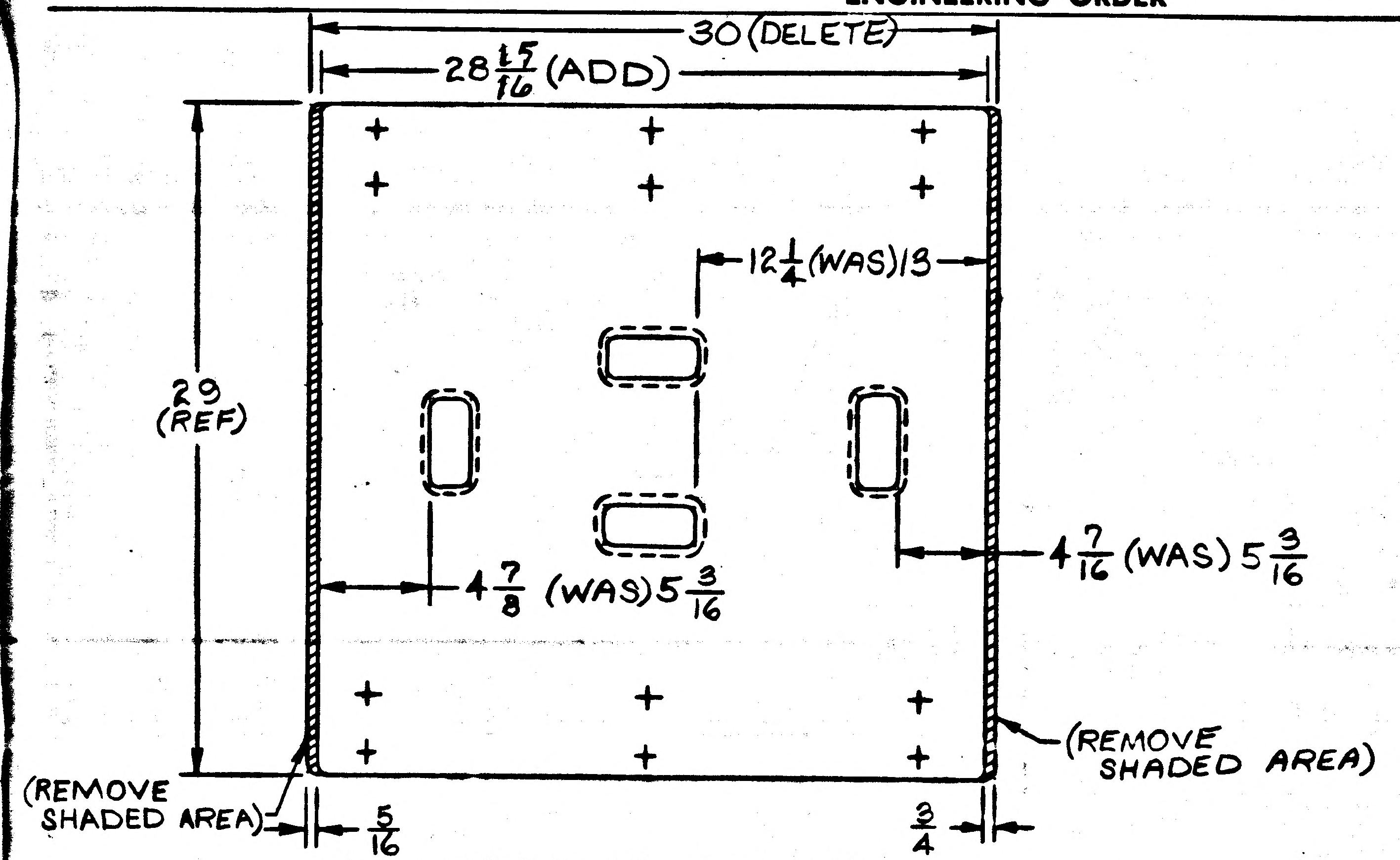
ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18456 | EO NO. A2

CONTROL INFO NO. LM-2-4495


30 (DELETE)
28 15/16 (ADD)
29 (REF)
12 1/4 (WAS) 13
4 7/16 (WAS) 5 3/16
4 7/8 (WAS) 5 3/16
(REMOVE SHADED AREA)
(REMOVE SHADED AREA)
5/16
3/4

LDW280-18456-19

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: ELIMINATE INTERFERENCE WITH LDW280-18447-13 FLANGE AT NEXT ASSEMBLY.

DESCRIPTION OF EO: IN FLD/DWG, FOR -19, REVISED DIMENSIONS, 28 15/16 (WAS 30), 12 1/4 (WAS 13) & 4 7/16 (WAS 5 3/16) & 4 7/8 (WAS 5 3/16).

GAEC EO RELEASE (2) JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					MBS			Bott
DATE	2/24				2/13/68	2/13/68	2/24	2/14/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BALLAST PLATE~DESCENT STAGE QUAD IV~EQUIPMENT STOWAGE PALLET	LDW280-18456	A2

ISSUED BY LIAISON J. MALONEY 2/6/68 X3604 SECTION V. D. I. GROUP NO. 335 PL. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 977
CONTROL INFO NO. LDW1280B3263

FOR ALL DASH NUMBERS * ON THE FOLLOWING DWGS. WHICH HAVE LTA-3 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY; QUANTITY & N/A TO REMAIN THE SAME AS ON LTA-3 (ADD PER LFM 130)

DRAWING No.	TITLE	CHANGE No.
LDW280M17830	SEE DWG.	A2 ✓
M17831		A2 ✓
M17836		A6 ✓
M17853		A2 ✓
-18445		A2 ✓
-18446		A2 ✓
-18447		A1 ✓
-18448		A2 ✓
-18449		A1 ✓
-18450		A4 ✓
LDW280-18456	SEE DWG	A3 ✓

LFM

* USE APPLICABLE DASH NO'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1021-37 PKG. 3 (REV. A)

REASON FOR EO: UPDATE LTA-3 MESS. BOX TO LM-5 - LM-15 MASS SIMULATION

DESCRIPTION OF EO: IN MOD/BLK FOR * ADDED LTA-8

GAEC EO RELEASE: (5) C JK 5/22/8

MODEL	EFFECTIVITY EI ~~PROCURING~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQ'D

APPROVED BY								
DATE	5/11/68			5-11-68	5/14/68		5/14/68	5-20-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 977

5/17/68
ISSUED BY J. LUCCHESI / H. PALLMEYER x1153 SECTION V. D. I. GROUP NO. 335 PL 25

01

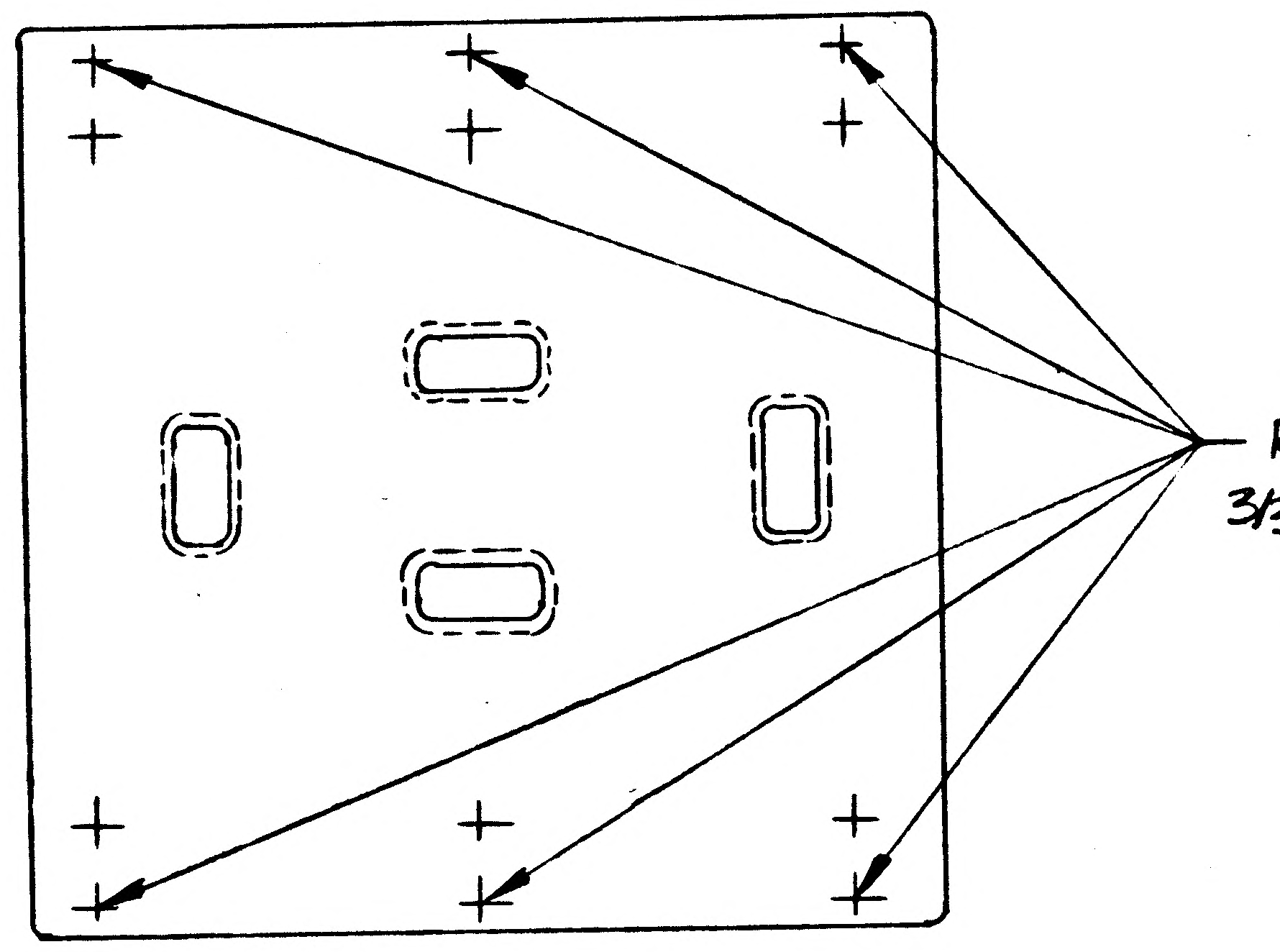
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18456
EO NO. A4
CONTROL INFO NO. LDW280B3567

CREATE -21 IDENTICAL TO -19 EXCEPT REMOVE
C'BORE ON HOLES SHOWN: N/A LDW280-23518 EFF. LTA-8(18)



REMOVE "C'BORE NEAR SIDE 3/4 DIA. 3/32 R, .312 DEPTH" (6 PLACES) (WAS 12 PLACES)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCR 1021-37 REV. A PKG. 3 (5)

REASON FOR EO: PROVIDE BASE FOR PICKUP OF CHANNEL

DESCRIPTION OF EO: CREATED -21

GAEC EO RELEASE: C JC 6/3/68

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQ
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAP	DWL		RST	W/H		JAP	JM
DATE	5/31/68	5/31/68		5/29/68	5/31/68		5/31/68	6-3-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: BALLAST PLATE ~ D/S ~ QUAD IV EQUIP. STOWAGE PALLET
DRAWING NO.: LDW280-18456
EO NO.: A4

5/31/68
ISSUED BY J. LUCCHESI / P. THORJUSEN X1153 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1017
CONTROL INFO NO. LDW280B36-7

FOR ALL DASH NUMBERS* ON THE FOLLOWING DWGS. WHICH HAVE LTA-8 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY; QUANTITY & N/A TO REMAIN SAME AS ON LTA-8. *USE APPLICABLE DASH NO'S

DRAWING NO.	TITLE	CHANGE NO.
LDW280-18445	SEE DWG	A5
-18446		A4
-18447		A3
-18448		A4
-18449		A3
-18450		A6
-18456		A5
M17830		A4
M17831		A4
M17836		A8
M17853		A4
LDW280-23518	SEE DWG	A6

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD3128 PKG 2

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR* ADDED D.V.T. EFF.

GAEC EO RELEASE (5) 6/22/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQ'D SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY								
DATE	5/27/68			5/27/68	5/27/68		5/27/68	6-21-68

PRIORITY C | DRAWING TITLE NOTED | DRAWING NO. LEO 280 | EO NO. 1017

31 MAY 68
ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18456 | EO NO. A6
CONTROL INFO NO. LDW280B4547

IN M/B

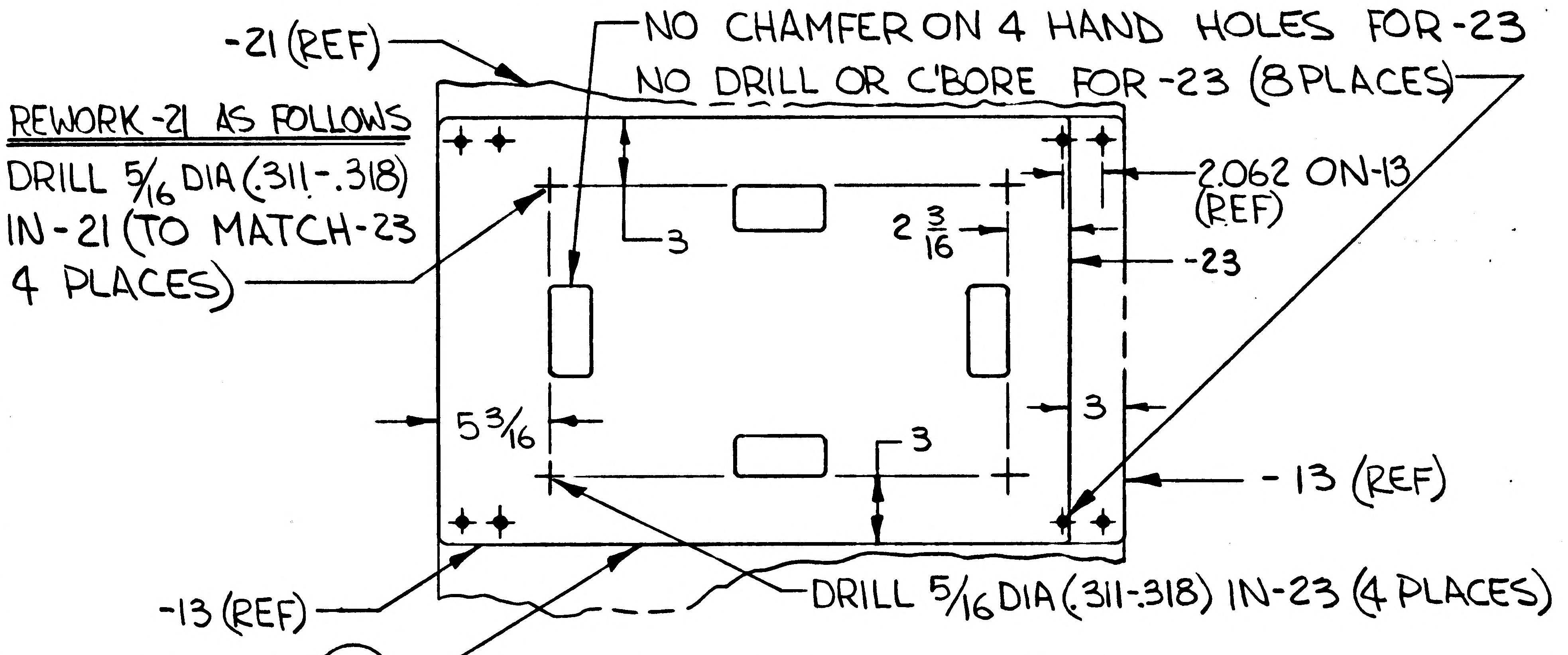
FOR -11 ~ N/A LDW280-66518 (1 REQD) WAS LDW280-23518 (1 REQD)
EFF. LTA-8 (18) & QUAL TEST (70).
ADD N/A LDW280-66518 (1 REQD) FOR LM-4 (34).

FOR -13 ~ N/A LDW280-66518 (1 REQD) WAS LDW280-23518 (4 REQD)
EFF. LTA-8 (18).
N/A LDW280-66518 (4 REQD) WAS LDW280-23518 (4 REQD)
EFF. QUAL TEST (70).

FOR -15 ~ N/A LDW280-66518 (1 REQD) WAS LDW 280-23518 (3 REQD)
EFF. LTA-8 (18).
N/A LDW280-66518 (3 REQD) WAS LDW280-23518 (3 REQD)
EFF. QUAL TEST (70).

FOR -19 ~ REMOVE LTA-8 (18) & QUAL TEST (70) EFF.

FOR -21 ~ N/A LDW280-66518 (1 REQD) WAS LDW280-23518 (1 REQD)
EFF. QUAL TEST (70).
ADD N/A LDW280-66518 (1 REQD) FOR LM-4 (34).
REMOVE LTA-8 (18) EFF.


-21 (REF)
NO CHAMFER ON 4 HAND HOLES FOR -23
NO DRILL OR C'BORE FOR -23 (8 PLACES)
REWORK -21 AS FOLLOWS
DRILL 5/16 DIA (.311-.318)
IN -21 (TO MATCH -23
4 PLACES)
3
2 3/16
2.062 ON -13
(REF)
-23
5 3/16
3
3
-13 (REF)
-13 (REF)
DRILL 5/16 DIA (.311-.318) IN -23 (4 PLACES)

CREATE (-23) IDENTICAL TO -13 EXCEPT AS SHOWN,
STOCK SIZE .190 × 20 × 31 (.500 × 20 × 31 FOR -13 REF)
FOR -23 ~ N/A LDW280-66518 (1 REQD) FOR LM-4 (34)

LFM

DESCRIPTION OF EO CONTINUED
FOR -19 REMOVED LTA-8 & QUAL TEST EFF.
⑤

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1021-37 PKG #3, LCD 2502 PKG #2 (CCA 857), LCD 3128 PKG #2

REASON FOR EO: LTA-8, LM-4 & QUAL TEST REQUIRE BALLAST ON PALLET

DESCRIPTION OF EO: CREATED -23. DRILLED 5/16 DIA. HOLES (4) IN -21. FOR -11, -13 & -15 N/A LDW280-66518 WAS LDW280-23518 ON LTA-8 & QUAL TEST. FOR -13 1 REQD WAS 4 REQD ON LTA-8. FOR -15 1 REQD WAS 3 REQD ON LTA-8. FOR -11 & -21 ADDED LM-4 EFF. FOR -21 REMOVED LTA-8 EFF. FOR -21 N/A LDW280-66518 WAS LDW280-23518 ON QUAL TEST

GAEC EO RELEASE: C 1 C
HF 7/27/68

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 130	LTA-8 (18)	
LM		LM-4 (34)	
LM		QUAL TEST (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK -21 | SCRAP 13, 15, 19

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~
DATE	7/24/68			7-24-68	7/24/68		7/24/68	7-26-68

PRIORITY: C
DRAWING TITLE: BALLAST DESCENT STAGE~QUAD IV~EQUIP STOW. PALLET
DRAWING NO.: LDW280-18456
EO NO.: A6

030168
ISSUED BY J. CORTELYOU / P. THORJUSEN x1153 SECTION VEH DES & INT GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18457

LM	LDW280-54791	LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
LM	LDW280-54791	LM-4 (34)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18457-15		GAEC SCH NO.	

LM	LDW280-54791	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54791	LM-4 (34)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18457-1, -13, & -14		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO
PRIM NO. 207
JK(001) MP-16 2/24/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011 / CCA 668
PKG 26 OK

CONTRACT NO. NAS-9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	GARRAFFO 2-20-68	WEIGHTS
LAYOUT BY	J. ROGERS 2-20-68	
CHECKED BY	D. FASS 2-21-68	
GRP LEADER	2-8-68	
VEH DES INT	G. Pusateri 2/8/68	
STRUCTURES	2/20/68	
STRUCTURES	2/21/68	
RELIABILITY		

PROJ ENGR G. Pusateri 2/8/68
REL GROUP 2-23-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET ASSEMBLY
DESCENT STAGE ~ BEAM PANEL
ELECTRICAL LINES SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18457
SCALE NONE
SHEET 1.00 OF 3

G 77.1 12-65

CDR 2/23/68

01

NAS 9-1100

QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	MS20470AD4	E		RIVET	STD PART						
	LDW280-18457-15			CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 2 x 2	NONE	88	
	-14			CHANNEL		QQ-A-250/4	2024-T3	.025 x 3 x 11	NONE		
	-13			CHANNEL		QQ-A-250/4	2024-T3	.025 x 3 x 11	NONE		
1	-11			BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 6 x 11	T6	88	
	LDW280-18457-1	E		BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP 14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18457

SCALE NONE | SHEET 2.00

ENG 77.2 5-64

01

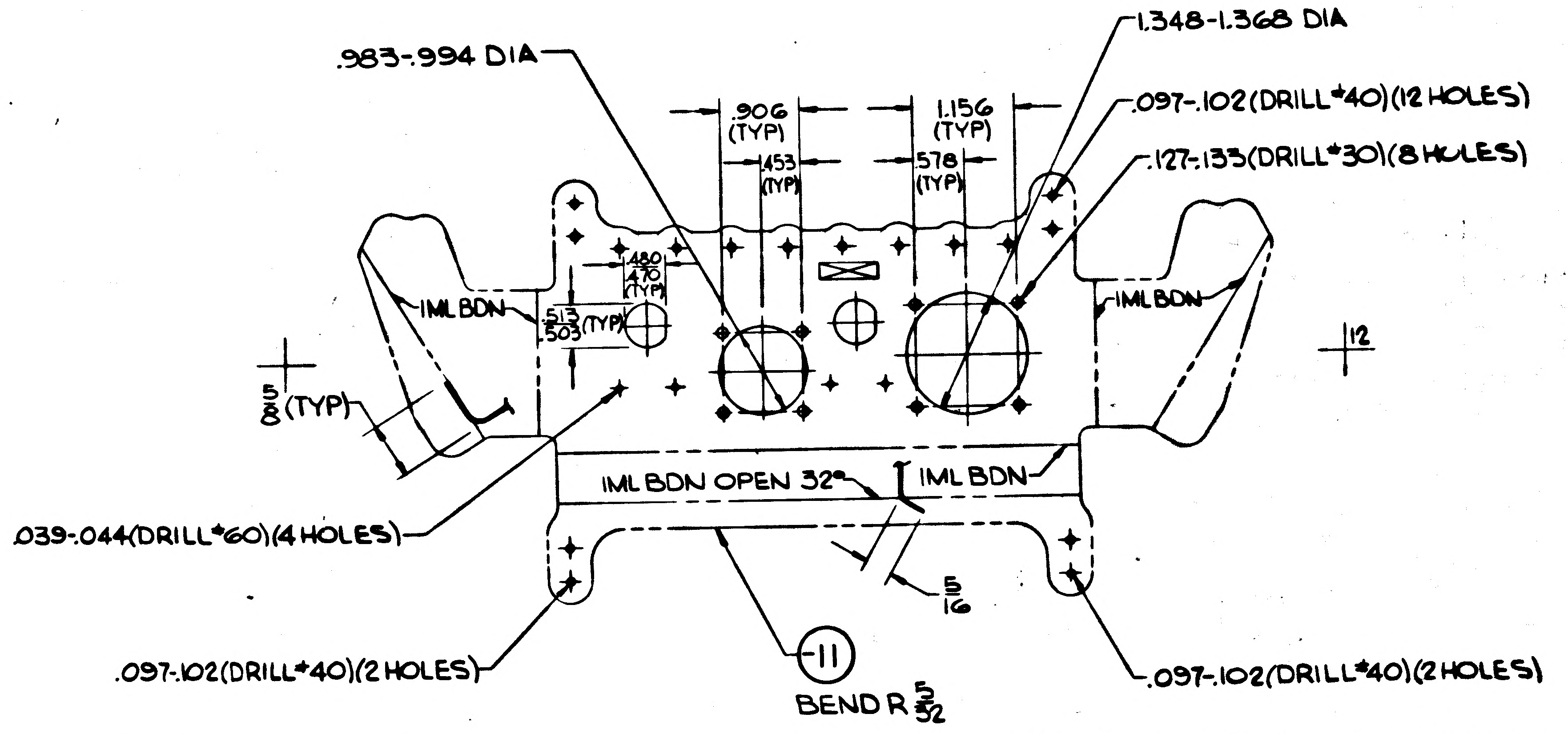
NAS 9-1100

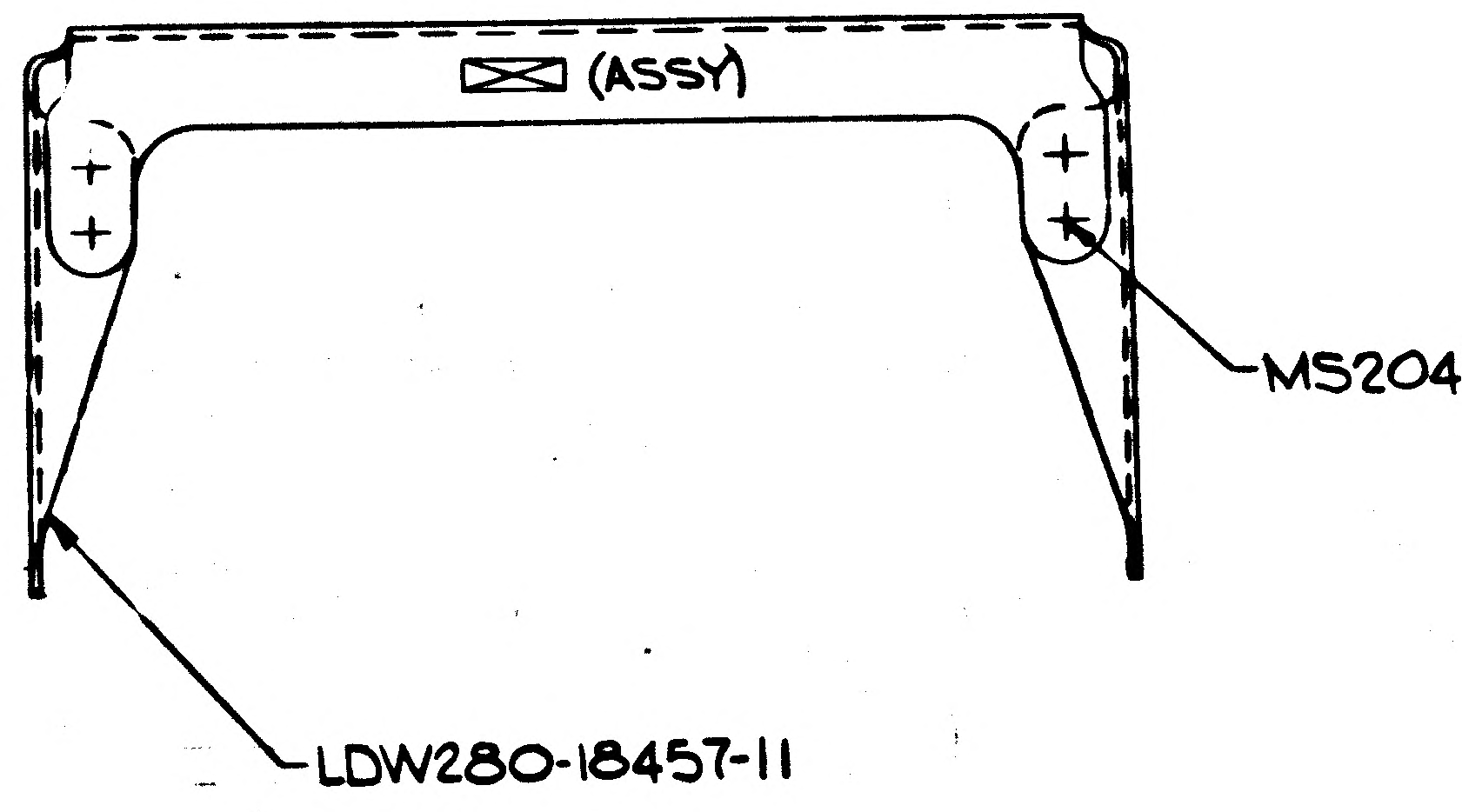
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

30

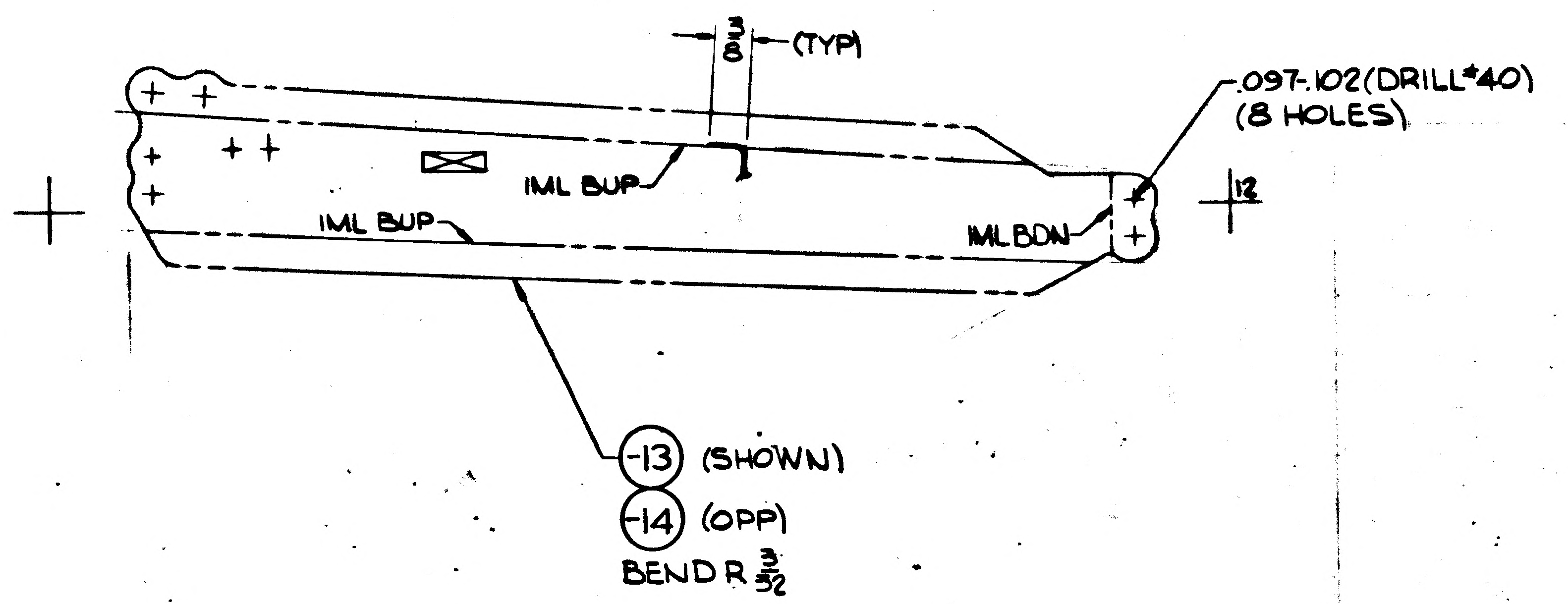
25

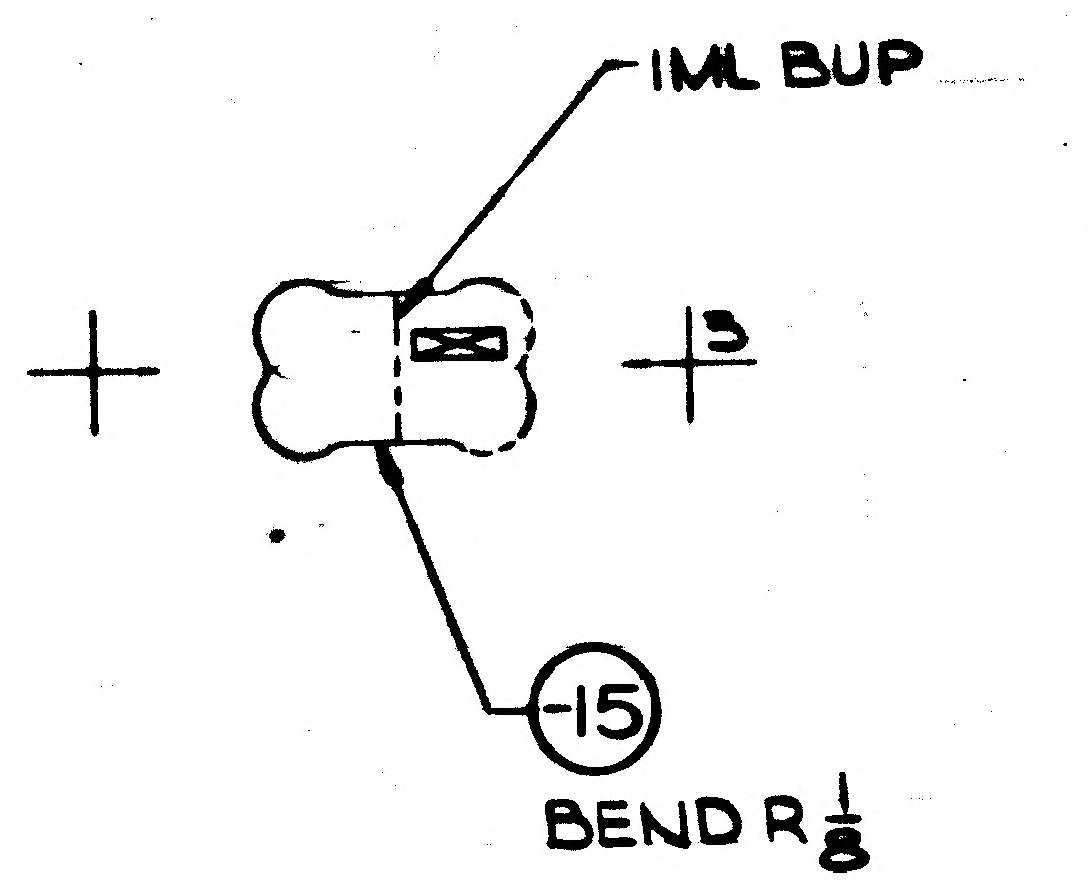
NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. INSTALL FASTENERS PER LSP-14-15302.


.983-.994 DIA
1.348-1.368 DIA
.906 (TYP)
1.156 (TYP)
.453 (TYP)
.578 (TYP)
.097-.102(DRILL#40)(12 HOLES)
.127-.133(DRILL#30)(8 HOLES)
.480/.470 (TYP)
.513/.503 (TYP)
IML BDN
IML BDN
5/8 (TYP)
12
IML BDN OPEN 32°
IML BDN
.039-.044(DRILL#60)(4 HOLES)
5/16
.097-.102(DRILL#40)(2 HOLES)
.097-.102(DRILL#40)(2 HOLES)
-11
BEND R 5/32


☒ (ASSY)
MS20470AD4(4)
LDW280-18457-11

LDW280-18457-1 ASSY


3/8 (TYP)
.097-.102(DRILL#40) (8 HOLES)
IML BUP
IML BUP
IML BDN
12
-13 (SHOWN)
-14 (OPP)
BEND R 3/32


IML BUP
3
-15
BEND R 1/8

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18457
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

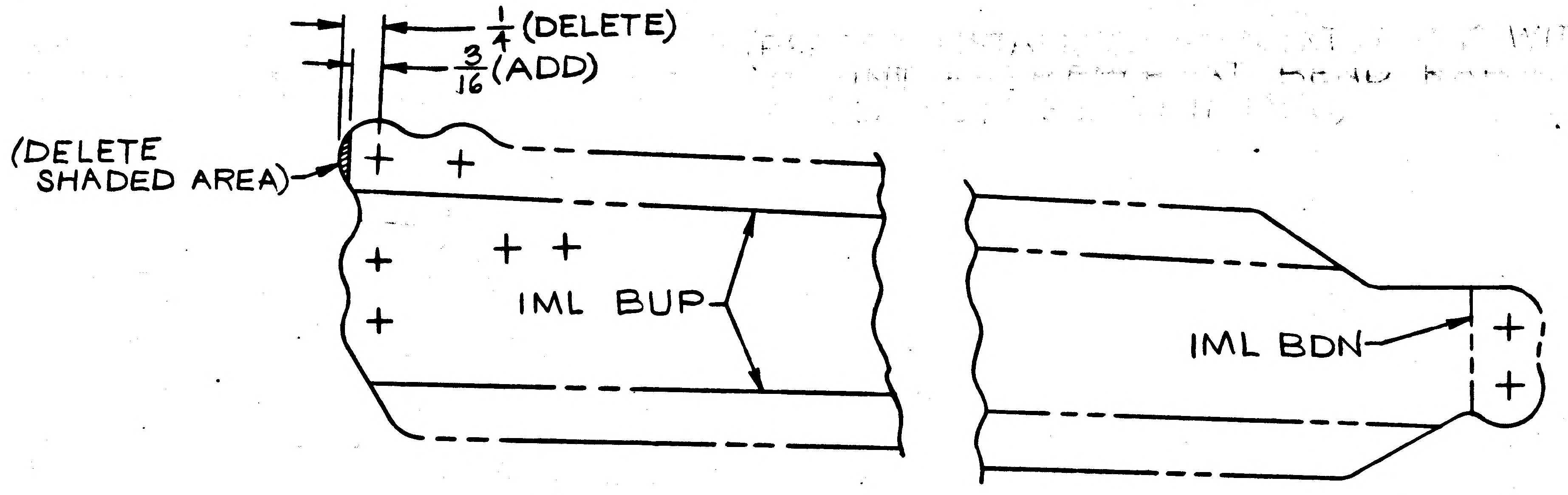
LDW280-18457

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18457
EO NO. A1
CONTROL INFO NO. LM-2-4691



LDW280-18457-13 (SHOWN)
-14 (OPP)

FOR REWORK OF EXISTING PARTS REFINISH BARE AREA #76 (ALODINE) PER LSP14-9010

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2011 CCA 668 PKG #26 (2)

REASON FOR EO: ELIMINATE INTERFERENCE WITH BEND RADIUS OF MATING PART AT NEXT ASSY

DESCRIPTION OF EO: FOR -13 & -14, IN FLD/DWG REVISED TRIM

GAEC EO RELEASE: JC 34,35 02925

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JaP			—			JaP	
DATE	5/18/68			—	5/8/68	5/8/68	5/18/68	5-4-68

PRIORITY: C
DRAWING TITLE: BRACKET ASSY~D/S~BEAM PANEL ELECTRICAL LINES SUPPORT
DRAWING NO. LDW280-18457
EO NO. A1

ISSUED BY LIAISON J. MALONEY 5/6/68 X3604
SECTION V.D.I.
GROUP NO. 335
PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452 ✓	A1	
-18457 ✓	A2	
-18458	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3587 PKG 54 PG 10	CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -✱

GAEC EO RELEASE: VK 4/15/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	1 SEE DWG	LEO 280	1339

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1651
CONTROL INFO NO. LDW280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40)
ADD LTA-11 (23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
✓ 438		C2
✓ 439		C3
✓ 457		A3
458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQ'D

APPROVED BY					M		
DATE	7-29-69			7-31-69	8-2-69		8-2-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1767

CONTROL INFO NO. LDW280B8996

IN MOD BLK FOR THE FOLLOWING DWGS & ALL DASH NO'S (*)

N/A LDW280-54791 RESTRICT EFF LM 4 (34) THRU 9 (39)
WAS
LM 4 (34) THRU 14 (44)
& LTA 11 (23)

DWG NO	TITLE	CHG. NO.
LDW280 -17998-*	SEE DWG	E4
✓ -18223-*		B5
✓ -18225-*		A3
✓ -18457-*		A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994-DK89

REASON FOR EO: BRACKETS NOT REQD FOR CMMP

DESCRIPTION OF EO: IN MOD BLK FOR (*) N/A LDW280-54791 RESTRICTED EFF LM 4(34) THRU LM 9(39) WAS LM 4(34) THRU 14(44), LTA 11(23)

GAEC EO RELEASE (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40) THRU 14 (44)	
LM		LTA 11 (23)	
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY	BJT				NM			
DATE	11-21-69			11/21/69	11/21/69		11/22	11-24-69
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO. LEO 280

EO NO. 1767

CDR 112669

ISSUED BY Don Ragas X86046 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18458 A

PART NO. LDW 280-18458-17-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST(70)	1EA
	LDW280-54679	LM-15(45)	1
	THRU		
LM	LDW 280-54679	LM-4(34)	1EA

PART NO. LDW 280-18458-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	TM-5/R(65)	1 EA
	LDW280-54586	DESIGN VERIFICATION TEST (70)	1
	LDW280-54586	LM-15(45	1
	THRU		
LM	LDW28C-54586	LM-4(34)	1 EA

PART NO. LDW280-18458-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	1
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54679	LM-4(34)	1

PART NO. LDW280-18458-11, -13, & 19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	1 EA
LM	LDW280-54679	DESIGN VERIFICATION TEST(70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(3[illegible])	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5([illegible])	1 EA
LM	LDW280-54679	LM-4(34)	1 EA

WORK PACKAGE FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO — shalla REF

PRIM NO.	JK(001)		
207	ME 1 A-3/31/68		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

B ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433, CCA586

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 3-6-63	RELIABILITY	
LAYOUT BY	R. GORTLER 3/22/68		
CHECKED BY	WCG 3/21/68		
GR LEADER	Thorgensen 4-1-68		
VEH DES INT	Stralcon 4/2/68		
STRUCT	M.S. MH 4/2/68	PROJ ENGR	Guastaferro 4/3/68
STRUCT	FEB 4/2/68	REL GROUP	Taglioivo 4/4/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE- QUAD II- THERMAL DOOR-ACTUATOR PULLEY SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18458	A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 3-22-68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00 1.10		G					INC EO A1 ADDED SH 1.10	LM-4 THRU LM-15 DVT			SORANNO 8-27-68		
	2	1.10 3.00		G					INC EO A2						
	3	1.00 1.10 2.00 3.00							INC EO A3						
	4	1.00							INC LEO 280-950	TM-5					
	5	1.00							INC LEO 280-951						
	6	3.00						②	INC EO A6	LM-4 THRU LM-15, DVT.			JoeB		3-29-69

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
	A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18458	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18458-19	E	PLATE	AL ALY SH	QQ-A-250/12	7075 -T6	.032 X 3 X 3	NONE	88	
		-17-1		CLIP			7075	.032 x 2 x 3	T6		
		-17		CLIP				.032 X 2 X 3			
		-15		ZEE				.032 X 5 X 7			
		-13		CHANNEL				.032 X 3 X 6			
		LDW280-18458-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032 X 4 X 8	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18458 | A

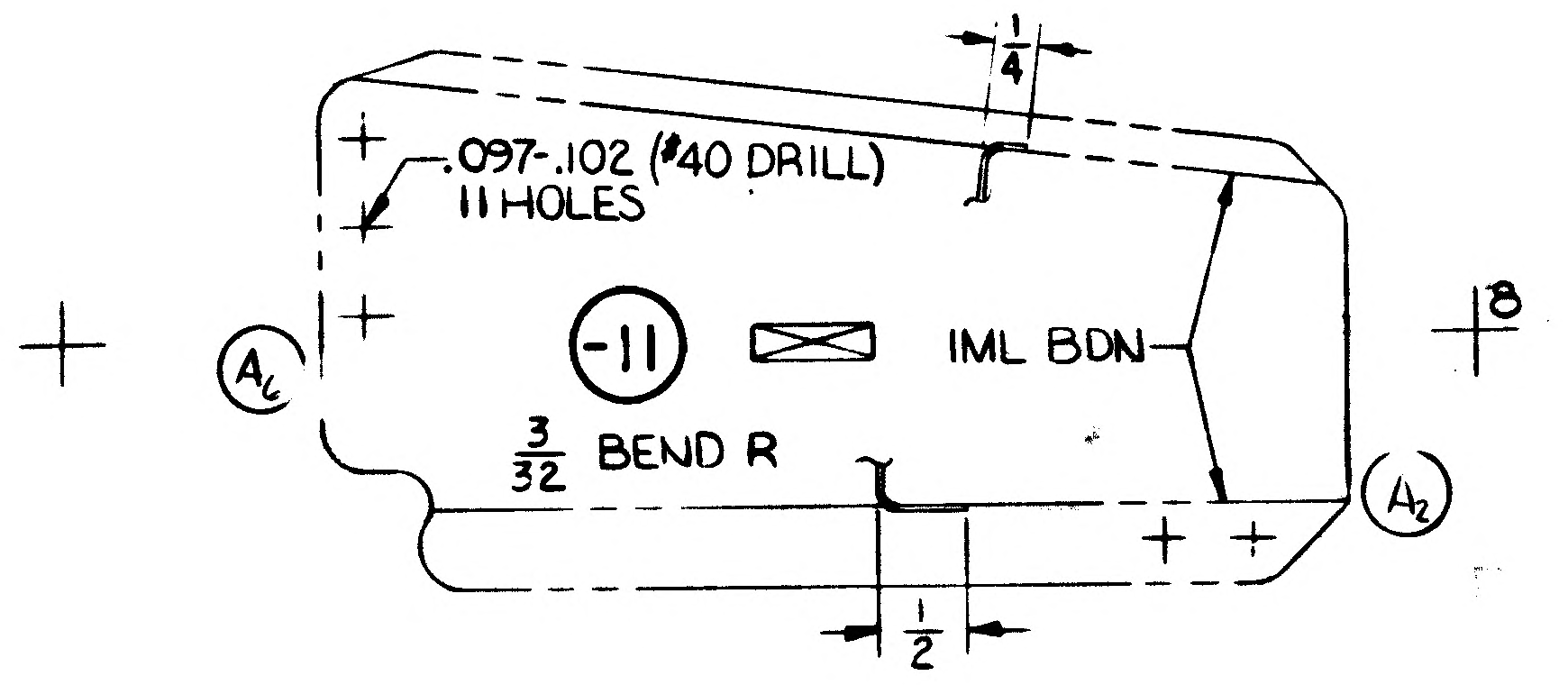
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

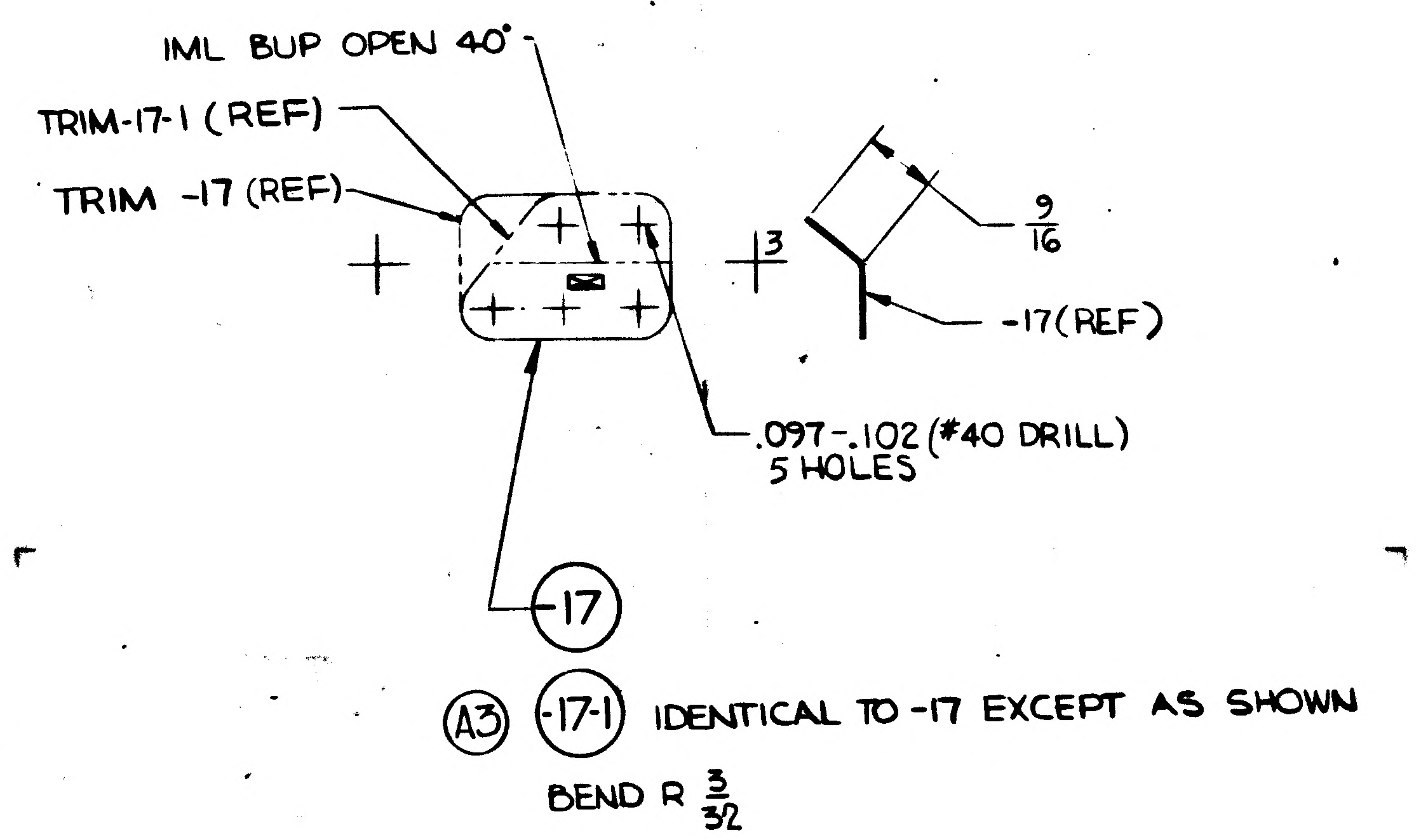
01

NAS 9-1100

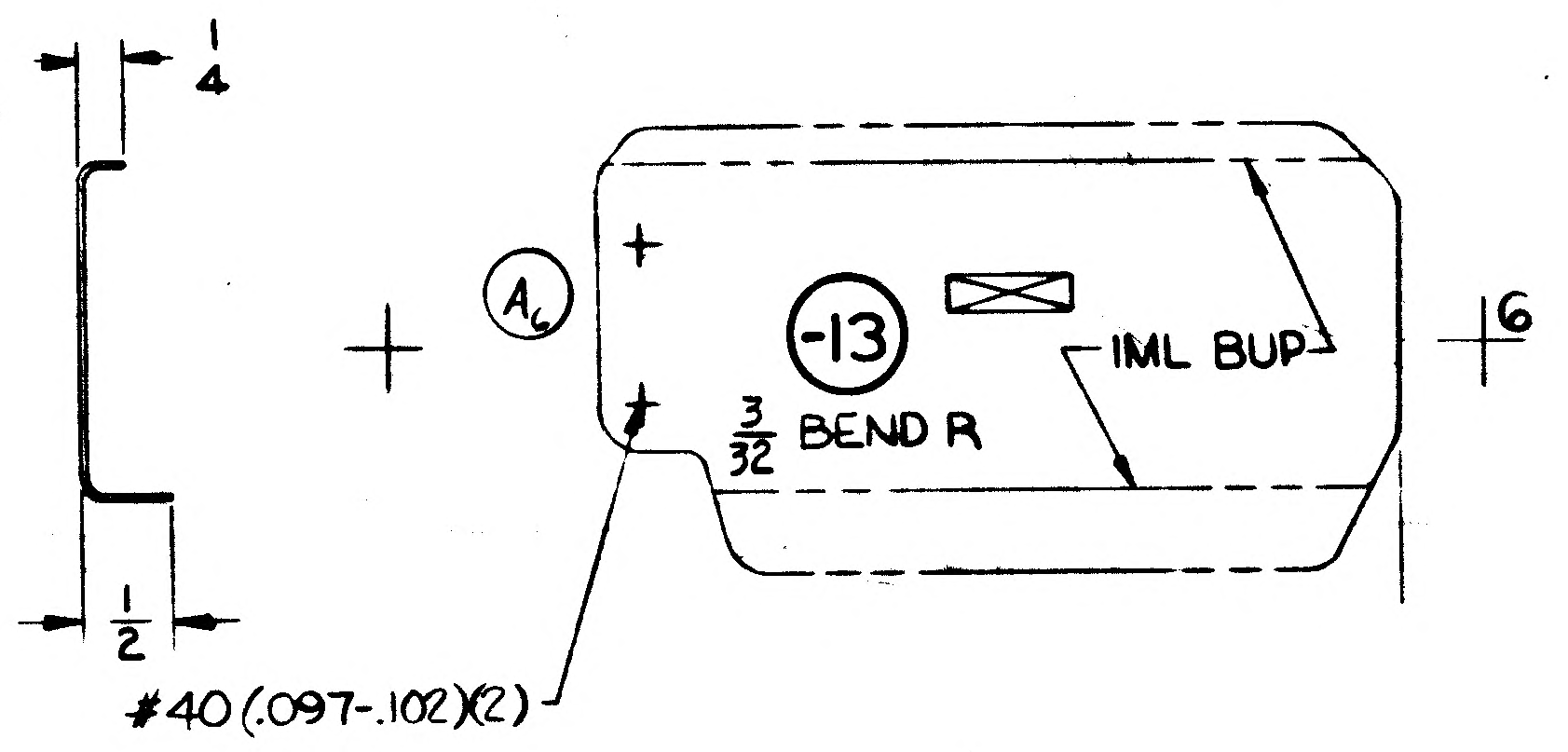
NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



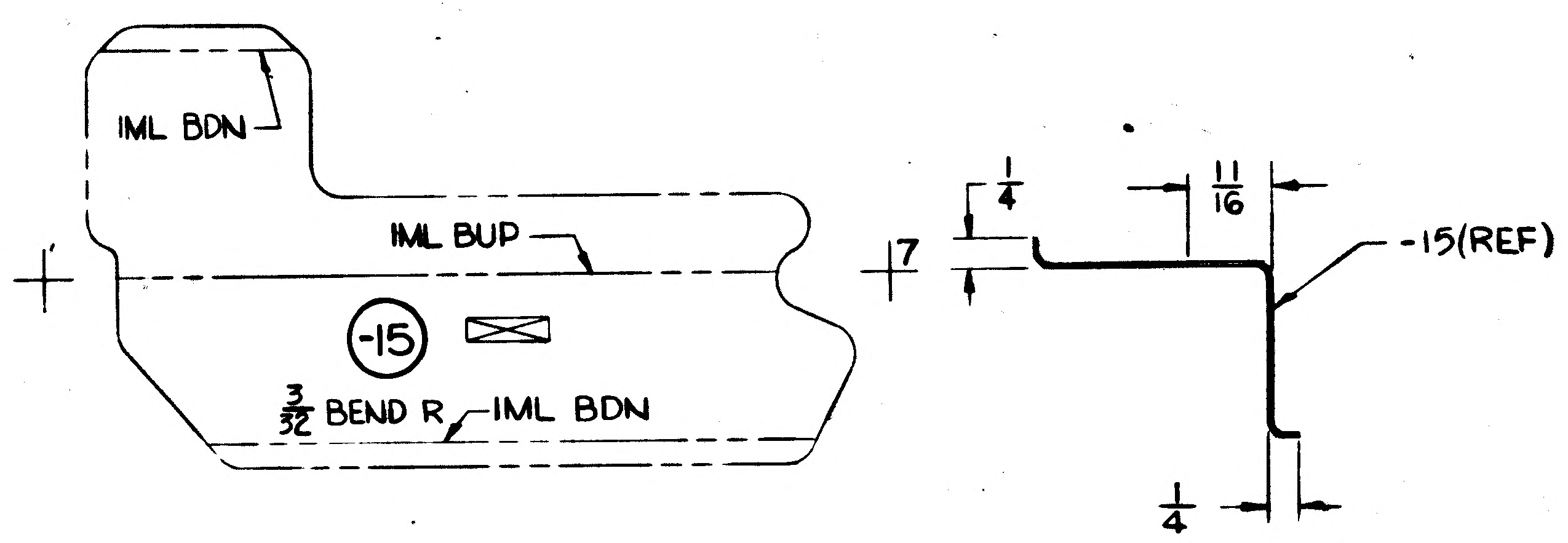
.097-.102 (#40 DRILL)
11 HOLES
1/4
-11
IML BDN
3/32 BEND R
A2
A2
8
1/2



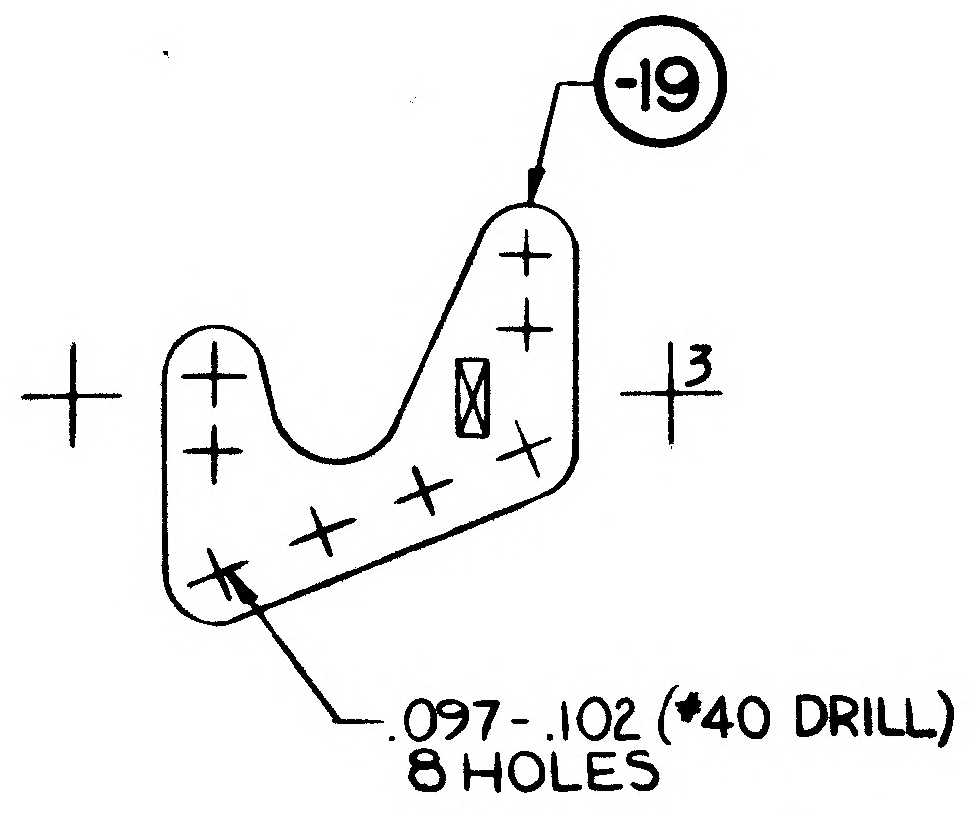
IML BUP OPEN 40°
TRIM-17-1 (REF)
TRIM -17 (REF)
13
9/16
-17 (REF)
.097-.102 (#40 DRILL)
5 HOLES
-17
A3
-17-1
IDENTICAL TO -17 EXCEPT AS SHOWN
BEND R 3/32



1/4
1/2
#40 (.097-.102)(2)
A2
-13
IML BUP
3/32 BEND R
6



IML BDN
IML BUP
-15
3/32 BEND R
IML BDN
7
1/4
11/16
-15 (REF)
1/4



-19
13
.097-.102 (#40 DRILL)
8 HOLES

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18458	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

LDW280-18458

ENG 73-5 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18458
EO NO. A1
CONTROL INFO NO. LDW280B2970

IN M/B
FOR -15 N/A LDW280-54679 S/B LDW280-54586
EFF LH-4(34) THRU LH-15(45) & D.V.T.(70), 1 REQ'D/HOD.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 PKG 18	(5)

REASON FOR EO: CORRECT NEXT ASSY

DESCRIPTION OF EO: FOR-15 N/A LDW280-54586 WAS LDW280-54679

GAEC EO RELEASE: (B) C VK 4/16/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LH		LH-4 (34)	THRU
		LH-15 (45)	&
		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP
✓		NOT REQD

APPROVED BY								
DATE	4/12/68	4/15/68		4-12-68	4/15/68		4/15/68	4-16-68
G	V.D.I.	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: CHANEL ~ D.S. ~ QUAD II ~ THERMAL DOOR ACTUATOR PULLEY SPT.
DRAWING NO.: LDW280-18458
EO NO.: A1

4-19-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

01 NAS 9-1100

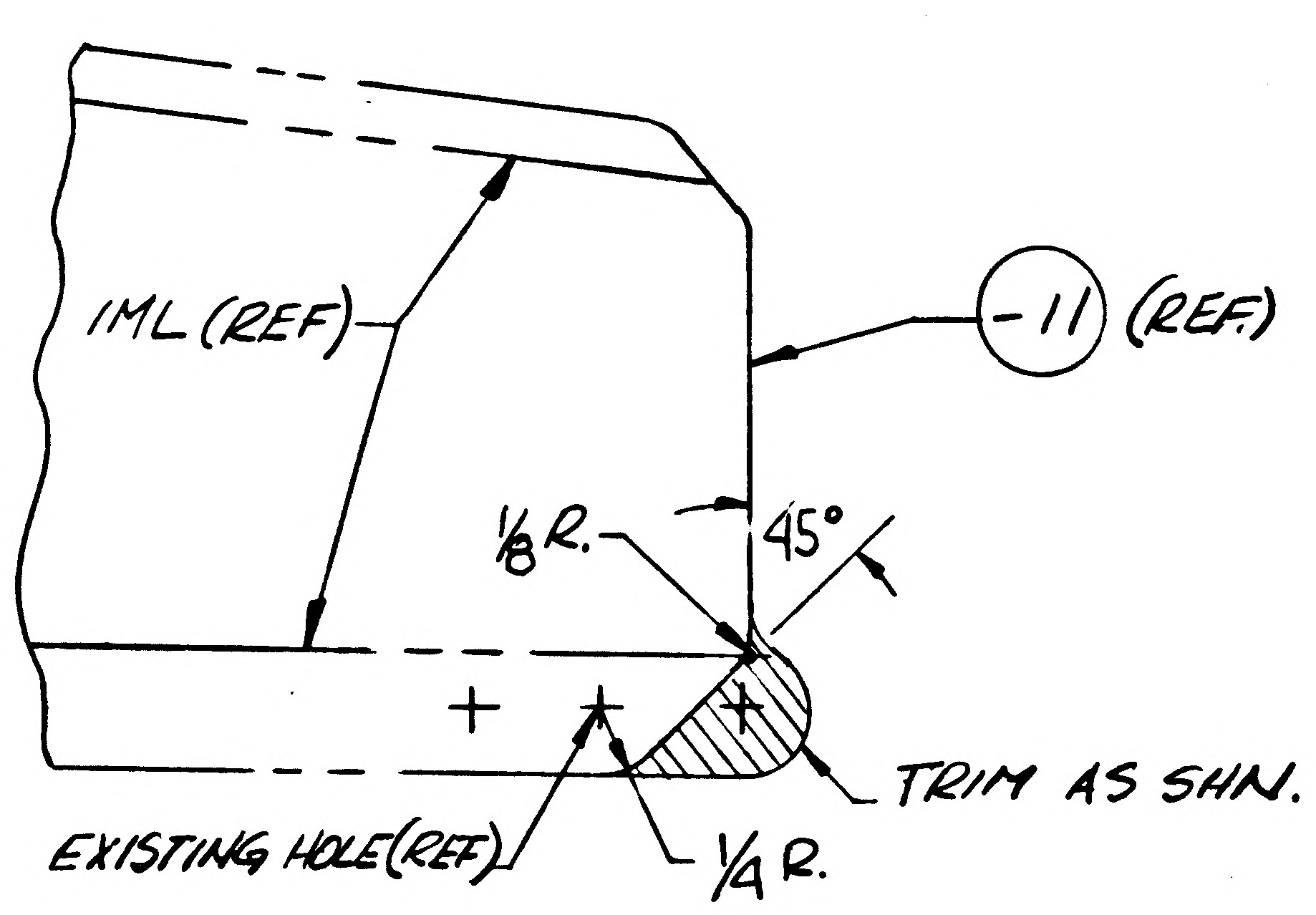
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18458		EO NO. A2	
CONTROL INFO NO. LDW280B3407			

IN F/D: ON -11, REVISE TRIM AS SHN.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	V	LCD 1433 CCA 586 PKG 13 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADJACENT STRUCTURE DOES NOT PICK UP RIVET	ON -11, REVISED TRIM	R C JK 5/11/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LM-4(34) THRU		✓		-11	
		LM-15(45),					
		DVT(70)					

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	G	VDI			GR PST	M.S. WJA		JAP	RP
DATE		5/11/68			5/11/68	5/11/68		5/11/68	5-11-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ D/S - QUAD II ~ THERMAL DOOR - ACTUATOR PULLEY SUPPORT	LDW280-18458	A2

051768
ISSUED BY J. TAVARES (x 1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

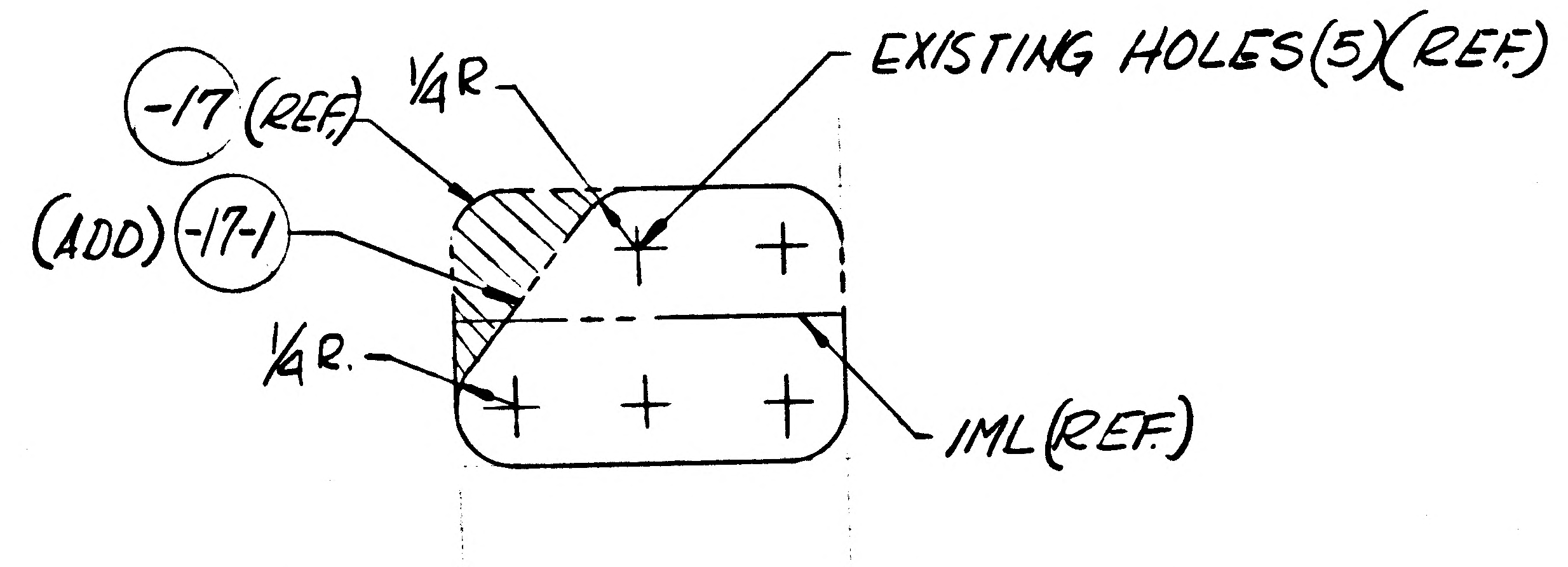
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18458 | EO NO. A3
CONTROL INFO NO. LDW280B 3437

IN F/D & B/M: ADD -17-1, IDENTICAL TO -17 EXCEPT AS NOTED, N/A LDW280-54679, (1) REQD./MOD., (-17-1 MAY BE MADE FROM -17)



IN M/B : FOR -17 (1) REQD/MODULE WAS (2) REQD/MODULE.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA586 PKG. 13 (5)

REASON FOR EO: INTERFERENCE WITH ADJACENT STIFFENER

DESCRIPTION OF EO: ADDED -17-1
FOR -17 (1) REQD/MOD. WAS (2).

GAEC EO RELEASE C: VK 5/14/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45), DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JAS						JAP	
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-13-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CHANNEL ~ D/S ~ QUAD II ~ THERMAL DOOR ACTUATOR PULLEY SUPPORT
DRAWING NO.: LDW280-18458
EO NO.: A3

CDR 5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B 3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW 280-18374-19	SEE DWG	4	A2 ✓
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2 ✓
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JHS							
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-17-68

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 950

5-17-68

ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 951
CONTROL INFO NO. LDW280B3379

FOR THE FOLLOWING PARTS ADD TH-5/R(65)REQMTS NEXT ASSY LDW 280-54586 FOR THE QUANTITIES NOTED.

DWG NO. (*)	TITLE	REQ'D/MOD.	CHANGE NO.
LDW280-17709-23	SEE DRAWING	1	B8
LDW280-17710-11 -13 -15 -17 -19		1 1 2 4 2	A9
LDW280-17739-15		4	C6
LDW280-17887-15 -17		1 1	B5
LDW280-18368-13-1		1	A5
LDW 280-18369-11 -13 -15 -16 -21 -23		1 1 1 1 1 1	A3
LDW280-18458-15		1	A5
LDW 280-18515-11 -13		1 1	B1
LDW280-18558-11 -13 -15 -17		1 1 1 1	A2
LDW280M17969-12		1	A2
LDW280M71500-11		1	A1
LDW 280M71501-11		3	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA586 PKG 2J (5)

REASON FOR EO: ADD TH-5(65)REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TH-5/R(65)REQMTS.

GAEC C EO RELEASE: JK 5/18/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY								
				REVISE DWG ✓ / RECORD EO	NOT REQD (REWORK / SCRAP)	DATE	5/13/68			5-13-68	5/1 /68		5/13/68	5-17-68
LH		TH-5/R(65)					V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 951

5-17-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

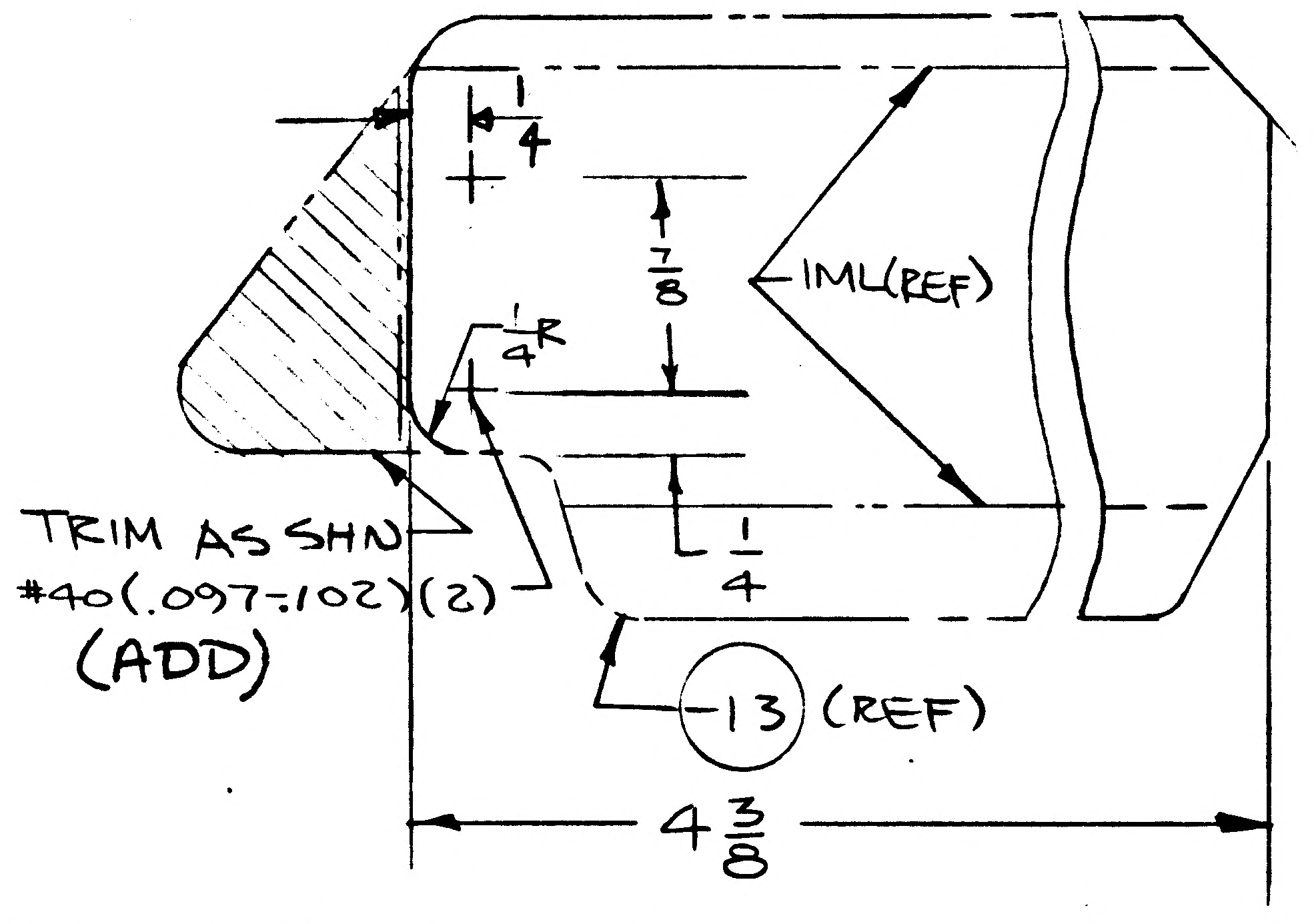
01 NAS 9-1100

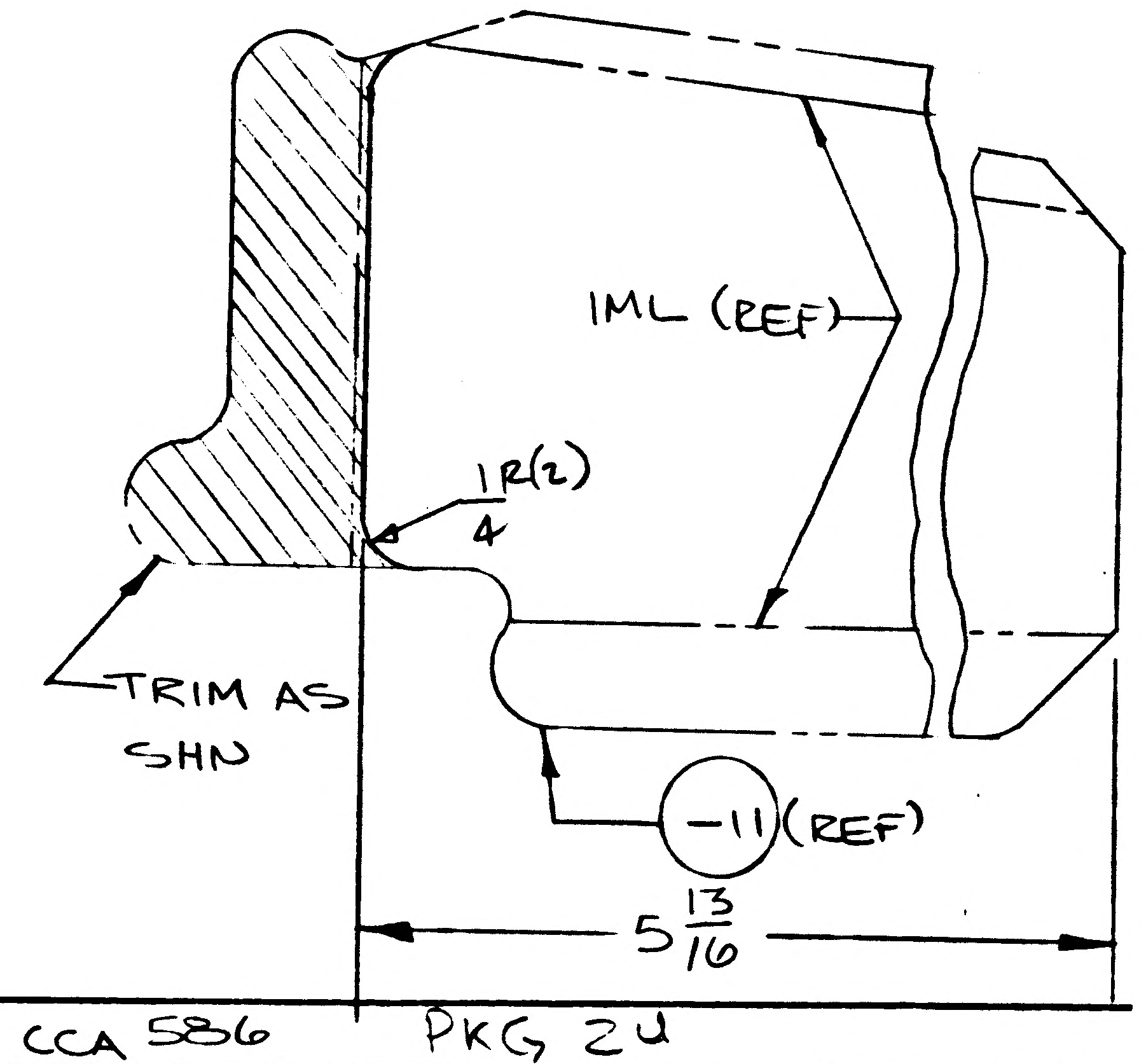
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18458
EO NO. A6
CONTROL INFO NO. LDW280B3841

IN F/D, ON -11 & -13, REVISE TRIM AS SHN. N/A, QUANITIES REMAIN THE SAME.





LOFTED PART - DIMS NOT TO APPEAR ON DWG

LCD 3075 CCA 586 PKG 24
LCD 1433 CCA 586 PKG 13 ✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

REASON FOR EO: TO STIFFEN SEQ BAY UPPER DECK.

DESCRIPTION OF EO: ON -11 & -13 REVISED TRIM

⑤ ⑥ GAEC EO RELEASE: H.F 6/11/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45) OUT(70)	
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-11 -13	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	6/10/68			6/10	6/11/68		6/11/68	6-11-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ DS ~ QUAD II ~ THERMAL DOOR ~ ACTUATOR PULLEY SPT	LDW280-18458	A6

6-15-68, 6-14-68
ISSUED BY G. Beleu \ J. Lang SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452 ✓	A1	
-18457 ✓	A2	
-18458 ✓	B1	
-18459	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/5/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/7/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1339

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1651
CONTROL INFO NO. LDW280B 82 78

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (Z3) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
✓ 438		C2
✓ 439		C3
✓ 457		A3
✓ 458		B2
459		A5
460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (Z3) REQMTS

GAEC EO RELEASE ② 8-21-69
JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (Z3)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY								
DATE	7-29-69			7/1/69	8-2-69			8/21/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1660
CONTROL INFO NO. LDW280B 8446

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS FOR THE NOTED NEXT ASSY. QUANTITY SAME A~~S~~ FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280- 17709 ✓	SEE DRAWING	LDW280-54586	C3
-17887 ✓		-54586	C3
-18515 ✓		-54586	B4
-18368 ✓		-54586	B3
-18369 ✓		-54586	A7
-18458 ✓		-54679	B3
-18458 ✓		-54586	
18558		-54586	A7
LDW 280 M18022		-54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,7, (5)

REASON FOR EO: ADDITION OF S.E.Q. BAY FOR TEST ARTICLE

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: SUB 8-22-69; K 9/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/13/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO280
EO NO. 1660

8-27-69
ISSUED BY F. OLIVERI EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1867

CONTROL INFO NO. LDW280C0197

FOR DASH *: WITH N/A ▽ REMOVE LTA-3DR/1 (460) REQMTS.:

DWG. NO. & DASH NO. *	CHANGE NO.	N/A ▽	DWG. NOMENCLTR.
✓ LDW280M17890-11	A6	LDW280-54679	SEE DWG.
✓ -18513-11,-13,-15,-17,-21	A10		
✓ -18458-11,-13,-17,-17-1,-19	B4		
M17969-11	A7		
-71512-11,-13(2),-15,-17,-18	A5		
-18616-15,-17	A3		
M18022-11	A5		
M18026-11	A4	LDW280-54679	
LDW280M17854-11	A6	LDW280-54576	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 70 PG12 & 13

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR DASH * REMOVED LTA-3D/R1 FOR N/A ▽

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

APPROVED BY	ggt				NM				
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO.: LE0280

EO NO.: 1867

CDR. 032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18459

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665E	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW 280-54665	LM-4(34)	1 EA
PART NO. LDW280-18459-11-12-13-15-16-17 & -19		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED 2

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	4(001)		
207	2-16- 3/2/8		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA 586)
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W. CONROY 1-30-68
LAYOUT BY GORTLER 6
CHECKED BY WCG 2/28/68
GROUP LEAD 2/29/68
VEH DES INT 2/29/68
STRUCTURE 2/27/68
STRUCTURE 3/1/68
WEIGHTS
RELIABILITY
PROJ ENGR J. Lusateri 2/29/68
REL GROUP 3-1-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE QUAD IV THERMAL DOOR
LOWER JAMB SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18459
SCALE NONE
SHEET 1.00 OF 3

CDR-2-23-68

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18459-19	E		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.028 x 4 x 8	T6	E8	
	-17			CHANNEL				.028 x 3 x 8			
	-16							.028 x 3 x 9			
	-15							.028 x 3 x 9			
	-13							.028 x 3 x 5			
	-12							.028 x 3 x 5			
	LDW280-18459-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.028 X 3 x 5	T6	E8	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
E8	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18459

SCALE NONE

SHEET 2.30

ENG 77.2 5-64

01

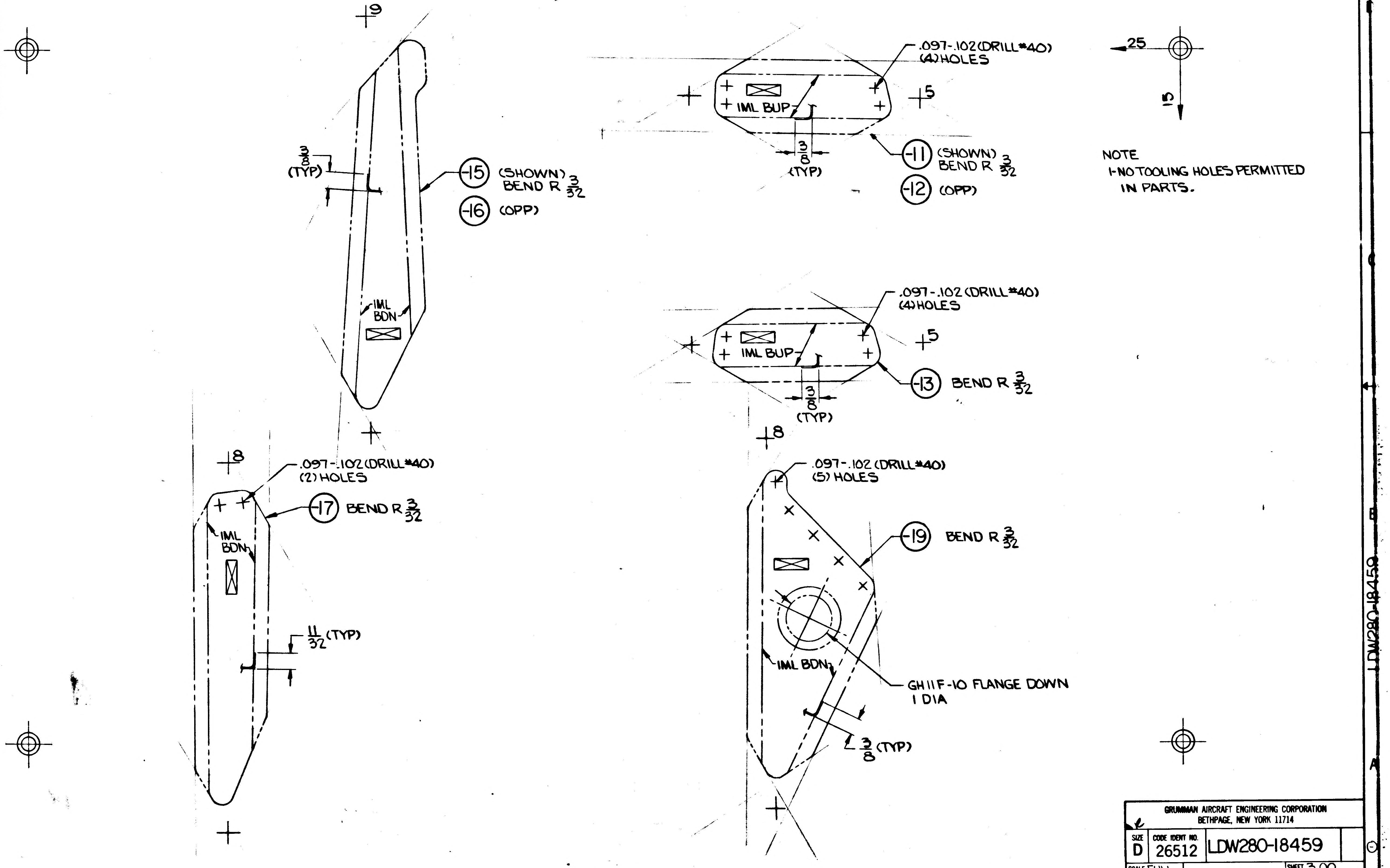
NAS 9-1100

LDW280-18459

TRAM O.K.
[illegible]

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ [redacted]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32 UNLESS OTHERWISE NOTED	✓


9
$\frac{3}{8}$ (TYP)
-15 (SHOWN) BEND R $\frac{3}{32}$
-16 (OPP)
IML BDN
.097-.102 (DRILL #40) (4) HOLES
IML BUP
5
$\frac{3}{8}$ (TYP)
-11 (SHOWN) BEND R $\frac{3}{32}$
-12 (OPP)
25
15
.097-.102 (DRILL #40) (4) HOLES
IML BUP
5
$\frac{3}{8}$ (TYP)
-13 BEND R $\frac{3}{32}$
8
.097-.102 (DRILL #40) (2) HOLES
-17 BEND R $\frac{3}{32}$
IML BDN
$\frac{11}{32}$ (TYP)
8
.097-.102 (DRILL #40) (5) HOLES
-19 BEND R $\frac{3}{32}$
IML BDN
GH11F-10 FLANGE DOWN 1 DIA
$\frac{3}{8}$ (TYP)

NOTE
1-NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18459
SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTIO

ENG 73.3 REV 5-67

LDW280-18459

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 964
CONTROL INFO NO. LDW280 B 3421

FOR THE FOLLOWING PARTS ADD TM-5/R (65) REQUIREMENTS, N/A LDW280-54665 FOR THE QUANTITIES NOTED

DWG NO*	TITLE	QUANT/MOD	CHANGE NO.
LDW280P18282-1	SEE DWG	1	A8 ✓
-13		1	
-54739-1		1	A1 ✓
-3		1	
-18110-11		2	A6 ✓
-15		1	
-18459-11		1	A1 ✓
-12		1	
-13		1	
-15		1	
-16		1	
-17		1	
-19		1	
-54674-1		1	A2
-54674-3		1	
-18488-11		1	A1
-12		1	
-13		1	
-14		1	
-15		1	
-17		1	
-19		1	
-21		1	
-23		1	
-24		1	
-54742-1		1	A1
-3		1	
-5		1	
-18585-11		3	A1
-18486-11		1	A1
-12		1	
-13		1	
-15		1	
-17		1	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3075 CCA 586 PKG 2V

REASON FOR EO: ADD TM-5/R (65) REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R (65) REQMTS

GAEC \ C EO RELEASE: (5) VK 5/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	[illegible]			[illegible]	W/H	[illegible]	[illegible]
DATE	5/16/68			5-16-68	5/16/68	5/16/68	5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 964

5-17-68
ISSUED BY T. COTTER x3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280 | EO NO. 1171
CONTROL INFO NO. LDW280B5608

ON FOLLOWING PART NO. REVISE N/A. EFFECTIVITY LM-6(36) THRU LM-15(45)

CHG LTR	* PART NO	REVISE N/A TO	WAS
✓ A8	LDW280-18110-11 & -15	LDW280-56665	LDW280-54665
✓ A2	-18459-11, -12, -13 -15, -16, -17 -19	↑	↑
B4	-18486-11, -12-19, -21, -27, -29		
A6	-18488-11, -12, -15 -17, -25, -27 -28, -31, -32 -33	↓	↓
A4	LDW280-54674-1 & 3	LDW280-56665	LDW280-54665

* FOR TITLE SEE DWG

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3179 PKG 9 ECP A062R CCA 1278 (5)

GAEC ® EO RELEASE: C

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATE

DESCRIPTION OF EO: FOR * REVISED N/A TO LDW280-56665 (WAS) LDW280-54665 EFF LM-6(36) THRU LM-15(45)

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LM-6(36) THRU LM-15(45)		✓		NOT	REQ'D

	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCT~~
APPROVED BY		N.R.						
DATE	10/18/68	10/18/68		10/17/68	10/18/68		10/18/68	10-22-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1171

ISSUED BY: CDR 110168 TORRACO / THORJUSEN X1153
SECTION: VDI
GROUP NO. 335
PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280 | EO NO. 1287
CONTROL INFO NO. LDW280B7091

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15 (45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHANGE LETTER
LDW280-18110	-11 & -15	LDW280-56665	LDW280-58665	A9
-18459	-11,-12,-13,-15,-16,-17 & -19	-56665	-58665	A3
-18486	-11,-12,-19,-21,-23 & -25	-56665	-58665	B6
-18488	-11,-12,-15,-17,-25,-27,-28,-31,-32 & -33	-56665	-58665	A7
-18661	-11	-56648	-58 48	A2
-54596	-1	-56599	-58599	A8
-54602	-1-1	-56648	-58648	B6
-54674	-1 & -3	-56665	-58665	A5
-54739	-1-1 & -3-1	-56665	-58665	A9
-54742	-41-1 & -51	-56665	-58665	B3
-56601	-1	-56599	-58599	A2
-56767	-1, -3 & -5	-56648	-58648	A2
LDW280-56804	-1	LDW280-56815	LDW280-58815	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: 2/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	Jaf	MMR		[illegible]	[illegible]		Jaf	[illegible]
DATE	2/13/69	2/17/69		2/12/69	2/12/69		2/17/69	2-19-69
	V.D.I.	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO. 1287

CDR030369
ISSUED BY W. KAY x87222 / D SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1339
CONTROL INFO NO. LDW280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452 ✓	A1	
-18457 ✓	A2	
-18458 ✓	B1	
-18459 ✓	A4	
LDW280 -18460	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: JK 4/15/9 4-2-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1339

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280
EO NO. 1651
CONTROL INFO NO. LDW 280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

	DRAWING Nº *	TITLE	CHANGE Nº
✓	LDW280-18435	SEE DWG	B5
✓	436		C3
✓	438		C2
✓	439		C3
✓	457		A3
✓	458		B2
✓	459		A5
	460		A7
	461		B3
	LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY					M		
DATE	7-29-69			7/1/69	8-2-69		8/21/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1736
CONTROL INFO NO. LDW280B8725

IN MOD. BLK. FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME. EFF: LM-10(40) THRU LM-14(44)

DRAWING NUMBER *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR.
LDW280-56806-1	LDW280-60817	LDW280-58817	SEE DWG	A3
-54739-1-2 & -3-2	-60665	-58665		B3
-54742-41-3	-60665	-58665		B6
-56767-5	-60648	-58648		A4
-56601-1	-60599	-58599		A4
-18110-11 & -15	-60665	-58665		B3
-18459-11, -12, -13, -15, -16, -17 & -19	-60665	-58665		A6
-18486-11, -12, -19, -21, -23 & -25	-60665	-58665		C2
LDW280-18488-11, -12, -15, -17, -25, -27, -28, -31, -32 & -33	LDW280-60665	LDW280-58665	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ C. I ENGRG CHG ✓ LCD 3994 PKG92

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A ** (WAS) ***

GAEC EO RELEASE: (5) VK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY								
DATE	—	10/21/69		10-20-69	10/21/69		10/22/69	10/23/69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1736

CDR110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL25

01

NAS 9-1100

LDW280-18460

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1EA
		LM-15 (45)	1EA
		LM-14 (44)	1EA
		LM-13 (43)	1EA
		LM-12 (42)	1EA
		LM-11 (41)	1EA
		LM-10 (40)	1EA
		LM-9 (39)	1EA
		LM-8 (38)	1EA
		LM-7 (37)	1EA
		LM-6 (36)	1EA
		LM-5 (35)	1EA
LM	LDW280-54679	LM-4 (34)	1EA
PART NO. LDW280-18460-11, -13 -15, -17, -19		GAEC SCH NO. 51	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 K(001) VIP-16 1/2/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA586)

5K

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY V. NARONIS 12-19-67
LAYOUT BY G. HANSMANN
CHECKED BY D. FASS 12-21-67
GR. LEADER 12/21/67
VEH DES INT 12/21/67
STRUCTURES WB 12/2
STRUCTURES 12/29
WEIGHTS
RELIABILITY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE - SCIENTIFIC EQUIP. BAY
UPPER DECK - THERMAL DOOR SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18460
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12/29/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18460-19	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 2 × 2	T6	88	
	↑ -17	↑		ANGLE	↑	↑	7075	.032 × 2 × 5	T6	88	
	-15			ANGLE			7075	.032 × 2 × 3	T6	88	
	↓ -13	↓		BRACKET	↓	↓	7075	.032 × 4 × 4	T6	88	
	LDW280-18460-11	E		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 × 4 × 5	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18460

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

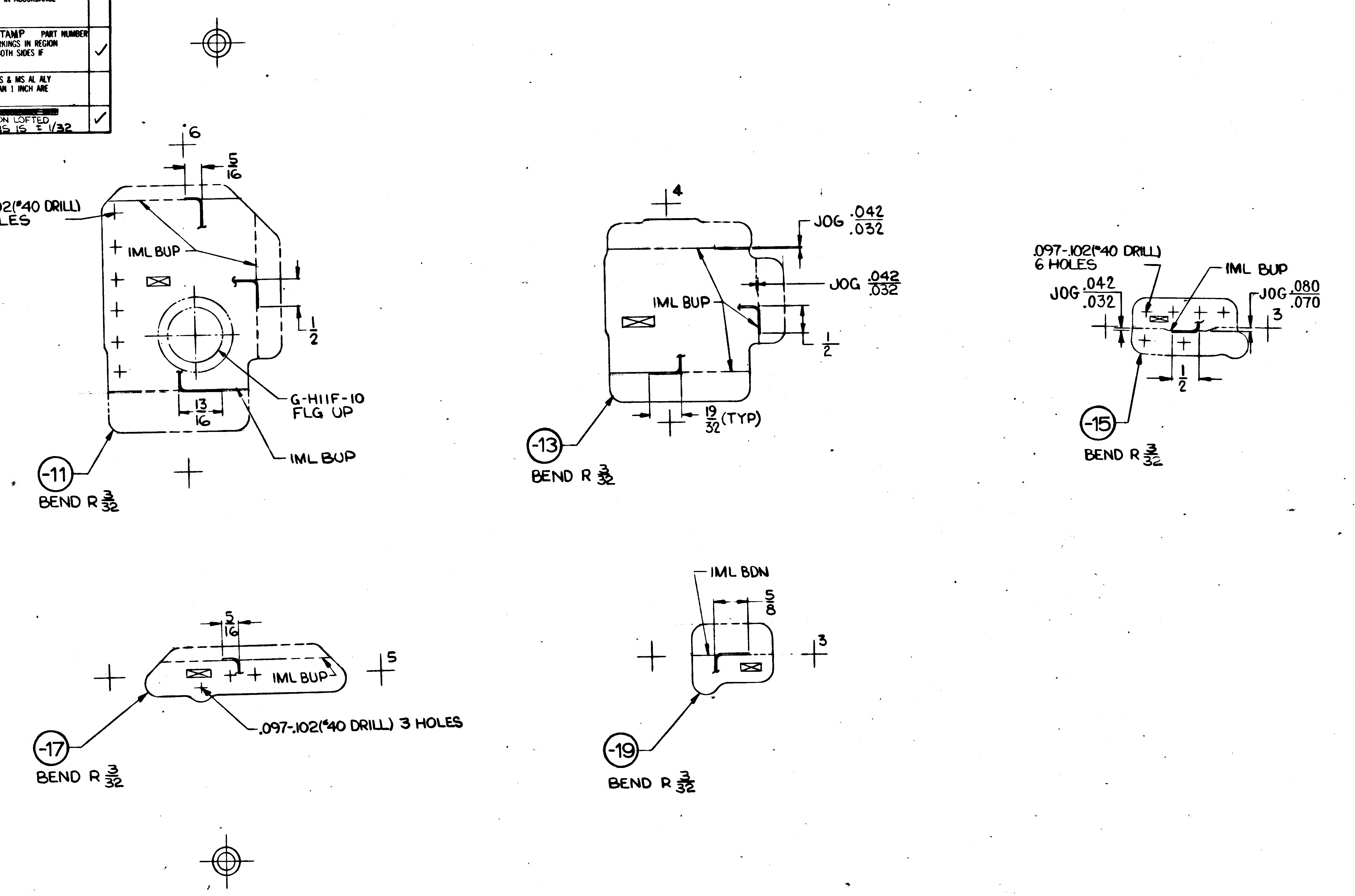
0 1

NAS 9-1100

LDW280-18460

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
[redacted] TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



6
5/16
.097-.102(#40 DRILL) 6 HOLES
IML BUP
1/2
G-H11F-10 FLG UP
13/16
IML BUP
-11
BEND R 3/32
4
JOG .042/.032
JOG .042/.032
IML BUP
1/2
19/32 (TYP)
-13
BEND R 3/32
.097-.102(#40 DRILL) 6 HOLES
IML BUP
JOG .042/.032
JOG .080/.070
3
1/2
-15
BEND R 3/32
5/16
IML BUP
5
.097-.102(#40 DRILL) 3 HOLES
-17
BEND R 3/32
IML BDN
5/8
3
-19
BEND R 3/32

25
15

NOTES.
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18460
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 2K

01

NAS 9-1100

P

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18460		EO NO. A1
CONTROL INFO NO. LM-2-4702		

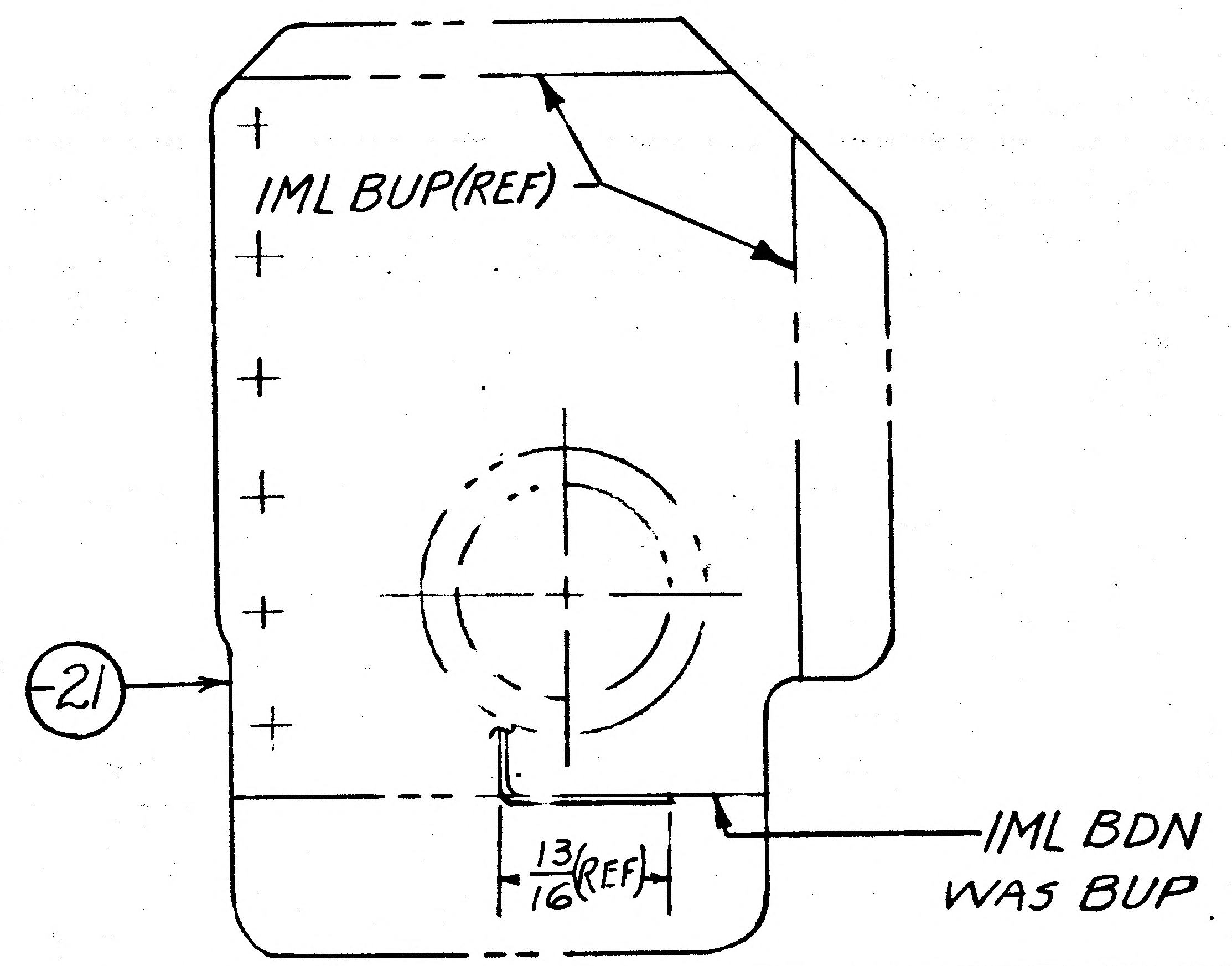
IN DWG/FLD, B/M & MOD/BLK

CREATE -21 IDENTICAL TO -11

EXCEPT FOR REVERSED BEND

(1 PLACE) AS SHOWN.

DELETE -11



DETAIL SPEC REQ		CL II ENGRG CHG		I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: CHANGE REQ'D TO MAKE PART FIT INTO NEXT ASSEMBLY

DESCRIPTION OF EO: IN DWG/FLD, B/M & MOD/BLK
ADDED -21
DELETED -11

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34) ~~THRU~~ LM-15(45) DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			-11

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—				
DATE	5/18/68			—	5/9/68	5/9/68	5/18/68	5-9-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET - DESCENT STAGE - SCIENTIFIC EQUIP BAY UPPER DECK - THERMAL DOOR SUPPORT	LDW280-18460	A1

ISSUED BY LIAISON GLENN BRONSON 3604 SECTION VDI GROUP NO. 335 PL 25

01

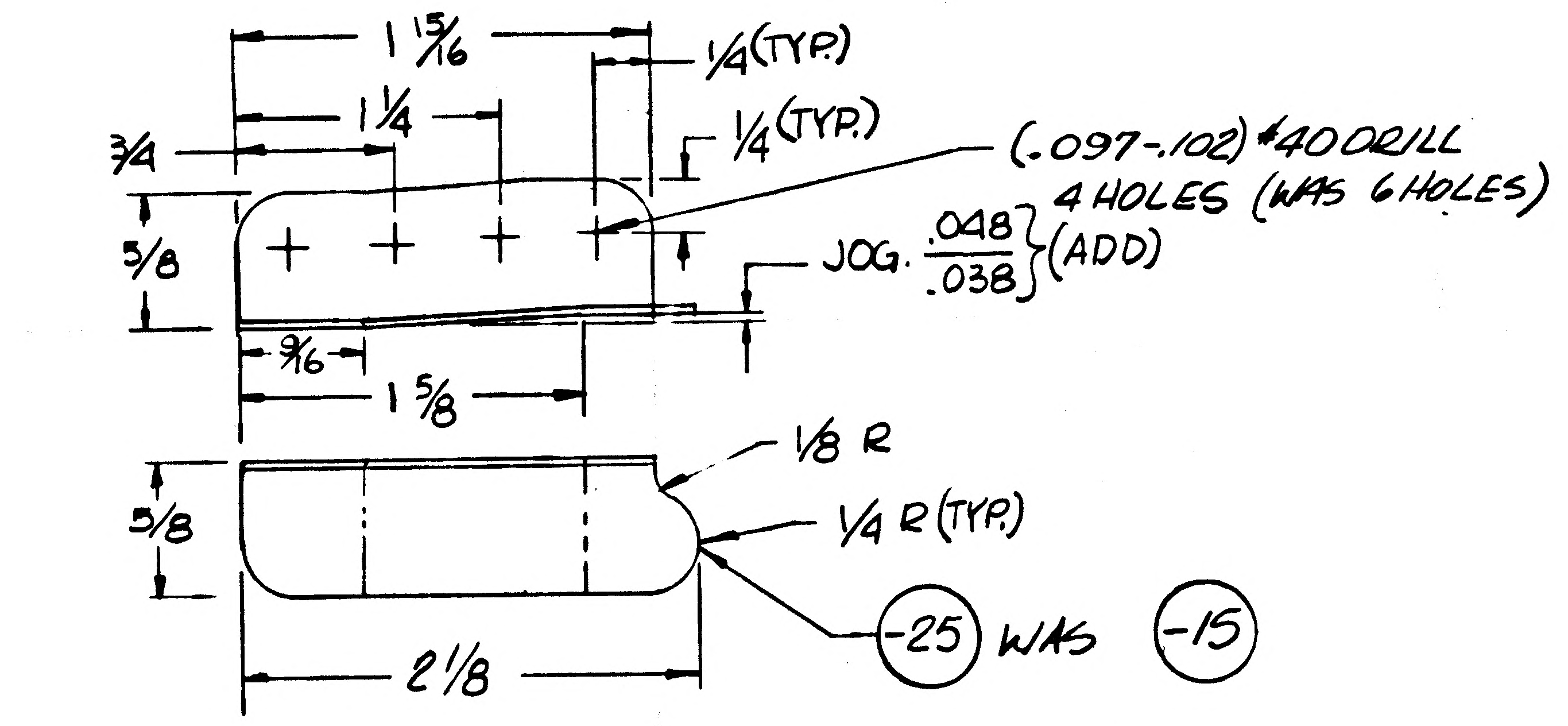
NAS 9-1100

ENG 32.2 REV 3-65

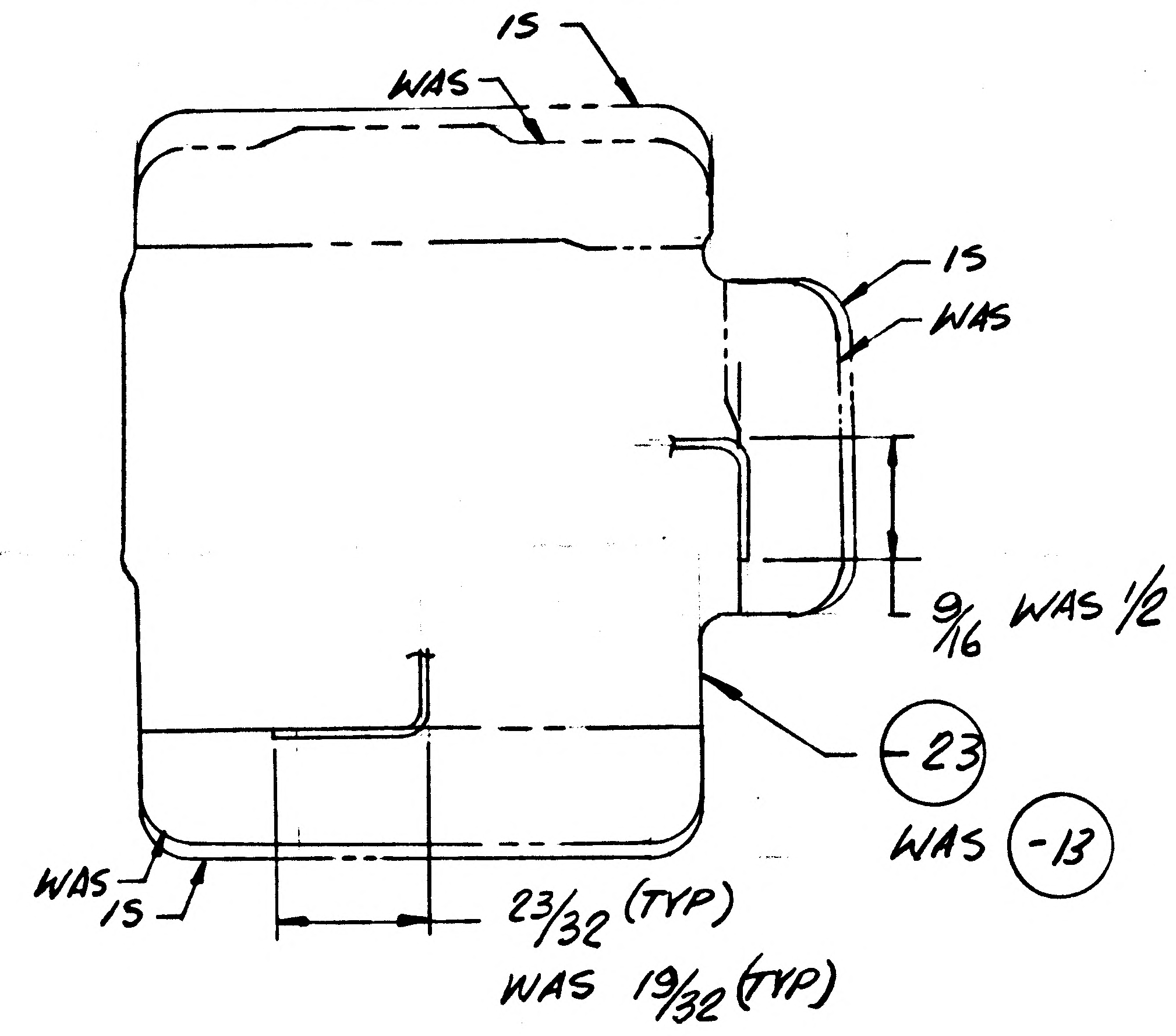
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18460
EO NO. A2
CONTROL INFO NO. LDW280B3383

IN F/D & B/M: ADD -25, (SAME AS -15 EXCEPT AS NOTED), REPLACING -15.


1 5/16
1/4 (TYP)
3/4
1 1/4
1/4 (TYP.)
(.097-.102) #40 DRILL
4 HOLES (WAS 6 HOLES)
5/8
JOG. .048/.038 (ADD)
9/16
1 5/8
1/8 R
5/8
1/4 R (TYP)
-25 WAS -15
2 1/8

IN F/D & B/M: ADD -23 (SAME AS -13 EXCEPT AS NOTED), REPLACING -13.


15
WAS
15
WAS
9/16 WAS 1/2
-23
WAS -13
WAS
15
23/32 (TYP)
WAS 19/32 (TYP)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG. 13

REASON FOR EO: MAKE FLANGES WIDER & TO REDESIGN PART

DESCRIPTION OF EO: IN F/D & B/M: -25 REPLACED -15 & -23 REPLACED -13

GAEC EO RELEASE: (5) JK 5/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45),	
		DVT(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | -13 -15 SCRAP

APPROVED BY								
DATE	5/9/68				5/10/68		5/10/68	5-10-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: BRACKET ~ D/S ~ SEQ BAY ~ UPPER DECK ~ THERMAL DOOR SUPPORT

DRAWING NO. LDW280-18460

EO NO. A2

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B 3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19		SEE DWG	4	A2
-21			1	
-23			1	
-25			1	
-18374-27			1	
-18375-11			1	A2
-12			1	
-13			2	
-14			2	
-15			2	
-17			4	
-18375-19			1	
-18458-11			1	A4
-13			1	
-17			1	
-19			1	
-18458-23			1	
-18460-21			1	A3
-23			1	
-25			1	
-17			1	
-18460-19			1	
-18461-21			1	A4
-22			1	
-13			2	
-15			2	
-17			1	
-18461-19			1	
-18469-11			1	A1
-13			2	
-15			2	
-17			2	
-18469-19			2	
-18470-11			1	A3
-18470-13			1	
LDW280-18470-15		SEE DWG	1	
LDW280-18470-19		SEE DWG	1	
LDW280-18470-21		SEE DWG	1	

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11		SEE DWG	1	A2
-13			1	
-15			1	
-17			1	
-18			1	
-18489-19			1	
-18506-11			1	A1
-13			1	
-15			1	
-17			1	
-18506-19			2	
-18513-11			1	A2
-13			1	
-15			1	
-17			1	
-18513-19			1	
-18560-11			1	A1
-13			1	
-15			1	
-17			1	
-18560-19			1	
-18561-11			1	A2
-13			1	
-15			1	
-17			1	
-18561-19			1	
-71512-11			1	A1
-13			2	
-15			1	
-17			1	
-71512-18			1	
M17884-13			1	A5
M17885-13			1	A3
M17890-11			1	A2
M17969-11			1	A1
M17970-11			1	A1
M17971-11			1	A1
M17972-11			1	A1
LDW280M17973-11		SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO	ADD TM-5/R(65) REQMTS.
DESCRIPTION OF EO	ON - * ADDED TM-5/R(65) REQMTS
GAEC EO RELEASE	C JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK: NOT REQ'D	SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JHS							
DATE	4/13/68			5-13-68	5/13/68		5/13/68	5-17-68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

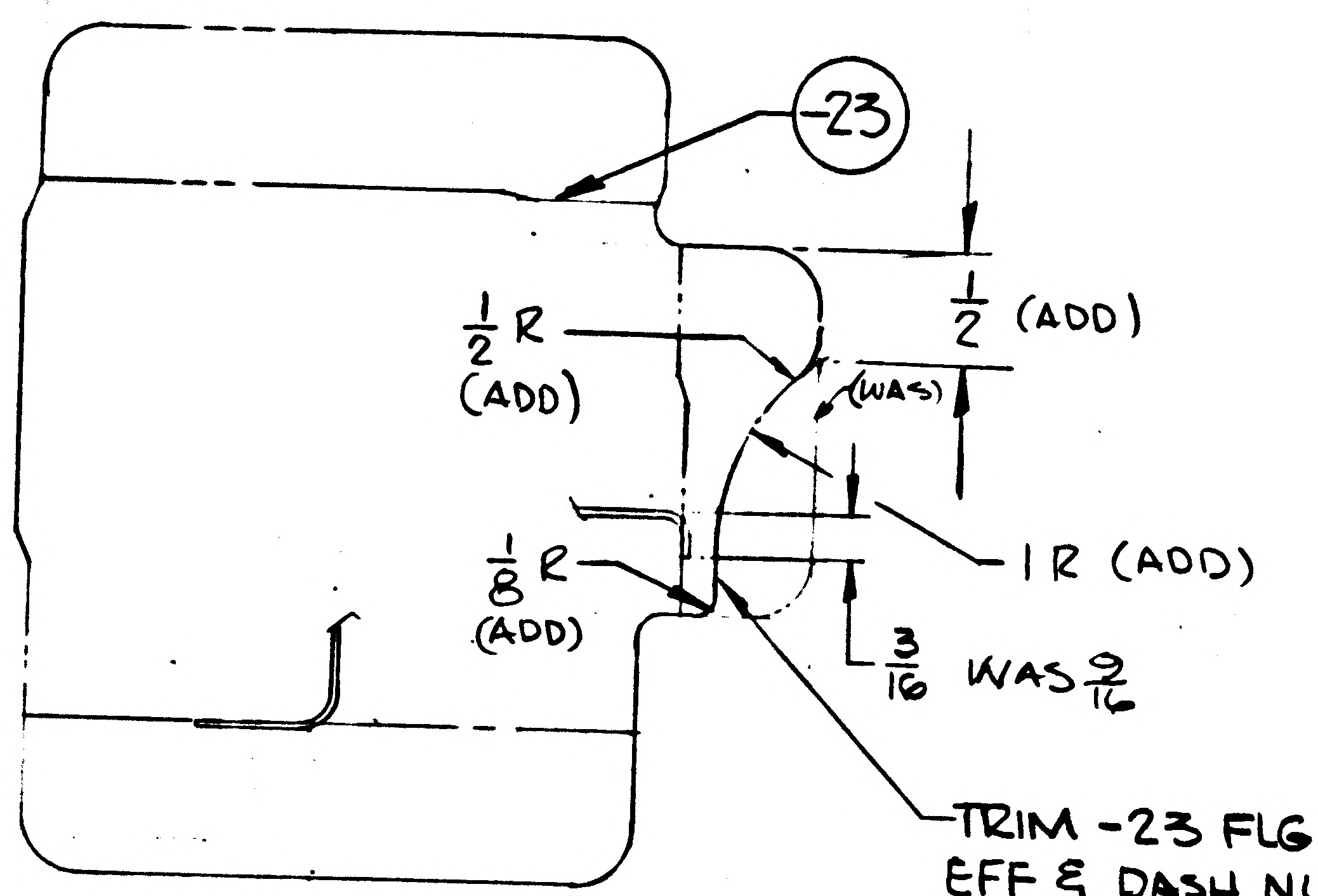
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18460 | EO NO. A4
CONTROL INFO NO. LDW280B5180

REVISE E.O A2



TRIM -23 FLG AS SHOWN
EFF & DASH NUMBER UNCHANGED
LOFTED DWG DIMS SHN FOR REF ONLY

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD1433 CCA586 PKG 14 / LCD3075 CCA586 PKG 2H (5)

REASON FOR EO: PROVIDE ACCESS FOR INSTL RIVETS

DESCRIPTION OF EO: REF: E.O A2
TRIMMED FLANGE ON -23.

GAEC EO RELEASE: K 8/15/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)-LM15(45)	
		DVT(70) TM-5/2(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY									
DATE	8/15/68			8-15-68	8/15/68		8/15/68	8-15-68	
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: BRACKET~DIS~SEQ BAY~UPPER DECK~THERMAL DOOR SUPPORT
DRAWING NO.: LDW280-18460
EO NO.: A4

8-16-68
ISSUED BY G CHAN / P. THORJUSEN X87222 SECTION VDI. GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO 1339
CONTROL INFO NO. LDW 280B7435

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18441	B4	SEE DWG
-18442 ✓	B6	
-18443 ✓	B5	
-18444 ✓	B4	
-18451 ✓	A2	
-18452 ✓	A1	
-18457 ✓	A2	
-18458 ✓	B1	
-18459 ✓	A4	
LDW280 -18460 ✓	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3587 PKG 54 PG 10 CCA 1821 (6)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: JK 4/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/15/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	1 SEE DWG	LEO 280	1339

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1650
CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 -18374	SEE DRAWING	LDW280-54679	A6
/ -18375		-54679	A6
/ -18513		-54679	A8
/ -18489		-54679	A5
/ -18460		-54679	A6
-18461		-54679	B2
-18469		-54679	A4
-18470		-54679	A6
-18506		-54679	A5
M17884		-54679	B2
-18560		-54679	A5
LDW 280 -18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: Sais 8-21 JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NO [illegible]

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PBA				WJA			
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/28/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1650

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280		EO NO. 1651
CONTROL INFO NO. LLW280B 8258		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18435	SEE DWG	B5
✓ 436		C3
✓ 438		C2
✓ 439		C3
✓ 457		A3
✓ 458		B2
✓ 459		A5
✓ 460		A7
461		B3
LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
				APPROVED BY	CBF				M		
✓		NOT REQ'D		DATE	7-29-69			7/31/69	8-2-69		8/29/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRES GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

	DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
	LDW280-			SEE DWG.
✓	-18374-19(4) **	B1	*LDW280-54679	
✓	-18375-12,-17(4),-19 **	A8		
✓	-18489-11,-13,-15(2),-17,-18,-19 **	A6		
✓	-18460-17,-19,-21,-23,-25 **	A8		
	-18461-13(2),-15(2),-19,-21,-22 **	B4		
	-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
	-18470-11,-13,-15,-19,-21 **	A7		
	M17884 -13-1(2) **	B3		
	LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR ** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

GAEC EO RELEASE ⑫

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	PST				NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO280

EO NO.: 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18461 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	LM-4(34)	1

PART NO. LDW280-18461-17 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	1
		DESIGN VERIFICATION TEST(70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM	LDW280-54679	LM-5(35)	1

PART NO. LDW280-18461-17-1 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	2 EA
LM		DESIGN VERIFICATION TEST(70)	2 EA
LM		LM-15(45)	2 EA
LM		LM-14(44)	2 EA
LM		LM-13(43)	2 EA
LM		LM-12(42)	2 EA
LM		LM-11 (41)	2 EA
LM		LM-10(40)	2 EA
LM		LM-9(39)	2 EA
LM		LM-8(38)	2 EA
LM		LM-7(37)	2 EA
LM		LM-6(36)	2 EA
LM		LM-5(35)	2 EA
LM	LDW280-54679	LM-4(34)	2 EA

PART NO. LDW280-18461-13 & -15 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	1 EA
LM		DESIGN VERIFICATION TEST(70)	1 EA
LM		LM-15(45)	1 EA
LM		LM-14(44)	1 EA
LM		LM-13(43)	1 EA
LM		LM-12(42)	1 EA
LM		LM-11(41)	1 EA
LM		LM-10(40)	1 EA
LM		LM-9 (39)	1 EA
LM		LM-8 (38)	1 EA
LM		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LM		LM-5(35)	1 EA
LM	LDW280-54679	LM-4(34)	1 EA

PART NO. LDW280-18461-21,-22 & -19 GAEC SCH NO. 51

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -22

GRUMMAN REL INFO A

PRIM NO. 207 LK 001 RE-1A 7/26/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 14 33(CCA586) OK

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	F.HIPPLER 12-23-67	RELIABILITY	
LAYOUT BY	G.HANSMANN		
CHECKED BY	D.FASS 12-29-67		
GR.LEADER	J Poyinski 1-2-68		
VEH.DES.INT	1/5/68		
STRUCTURES	WB N/H 1/5/68	PROJ ENGR	1/5/68
STRUCTURES	TEB 1/5/68	REL GROUP	J Tagliavia 1-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP BAY
UPPER DECK-CABLE BRACKET SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18461	A
SCALE	NONE	SHEET 1.00 OF 4	

CDR 12-29-67

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10,3.00		G					INC EO A1 ADDED SH 1.10	LM-4 THRU LM-15 DVT (70)			O.ESTERHELD 10-13-68		
	2	1.00,2.00,3.00							INC EO A2						
	3	3.00							INC EO A3						
	4	1.00							INC LEO 280-950	TM-5/R(65)					
	5	3.00							INC EO A5	LM-4 THRU LM-15, DVT(70) TM-5/R(65)					
	6	1.00, 2.00 & 3.00		G					INC EO A6	LM-5 THRU LM-15, DVT(70), TM-5/R(65)					3-25-69

CHG APPROVED LTR	GROUP LDR	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18461	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18461-17-1	E		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 × 8 × 9	T6	88	
	↑ -19	↑		CHANNEL	↑	↑	↑	.032 × 5 × 14	↑	↑	
	-17			BRACKET				.040 × 8 × 9			
	-15			PLATE				.040 × 1 × 3			
	-13			PLATE				.032 × 2 × 3			
	↓ -22	↓		CHANNEL	↓	↓	↓	.032 × 4 × 10	↓	↓	
	LDW280-18461-21	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 × 4 × 10	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL ALLOY HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18461	A
SCALE NONE			SHEET 2.00

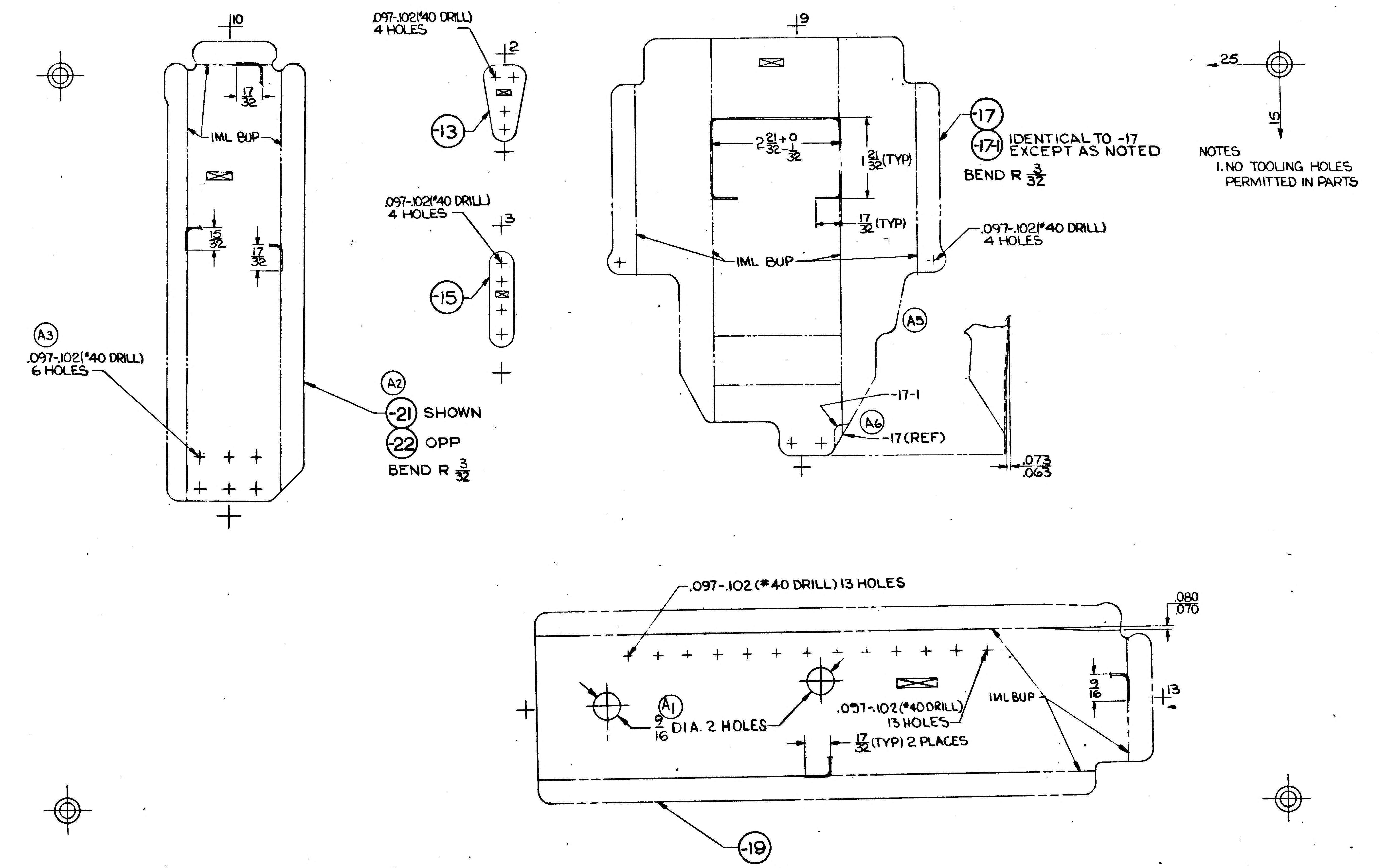
ENG 77.2 5-64

01

NAS 9-1100

LDW280-18461 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


-10
17/32
IML BUP
15/32
17/32
A3
.097-.102(#40 DRILL) 6 HOLES
A2
-21 SHOWN
-22 OPP
BEND R 3/32
.097-.102(#40 DRILL) 4 HOLES
-2
-13
.097-.102(#40 DRILL) 4 HOLES
-3
-15
-9
2 21/32 +0 -1/32
1 21/32 (TYP)
17/32 (TYP)
IML BUP
-17
-17-1 IDENTICAL TO -17 EXCEPT AS NOTED
BEND R 3/32
.097-.102(#40 DRILL) 4 HOLES
A5
-17-1
A6
-17(REF)
.073
.063
25
15
.097-.102 (#40 DRILL) 13 HOLES
.080
.070
A1
9/16 DIA. 2 HOLES
.097-.102(#40 DRILL) 13 HOLES
17/32 (TYP) 2 PLACES
IML BUP
9/16
-13
-19
BEND R 3/32

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18461	A
SCALE FULL		SHEET 3.00	

DWG 73.3 REV. 5-67

FOR PHOTO REPRODUCTION

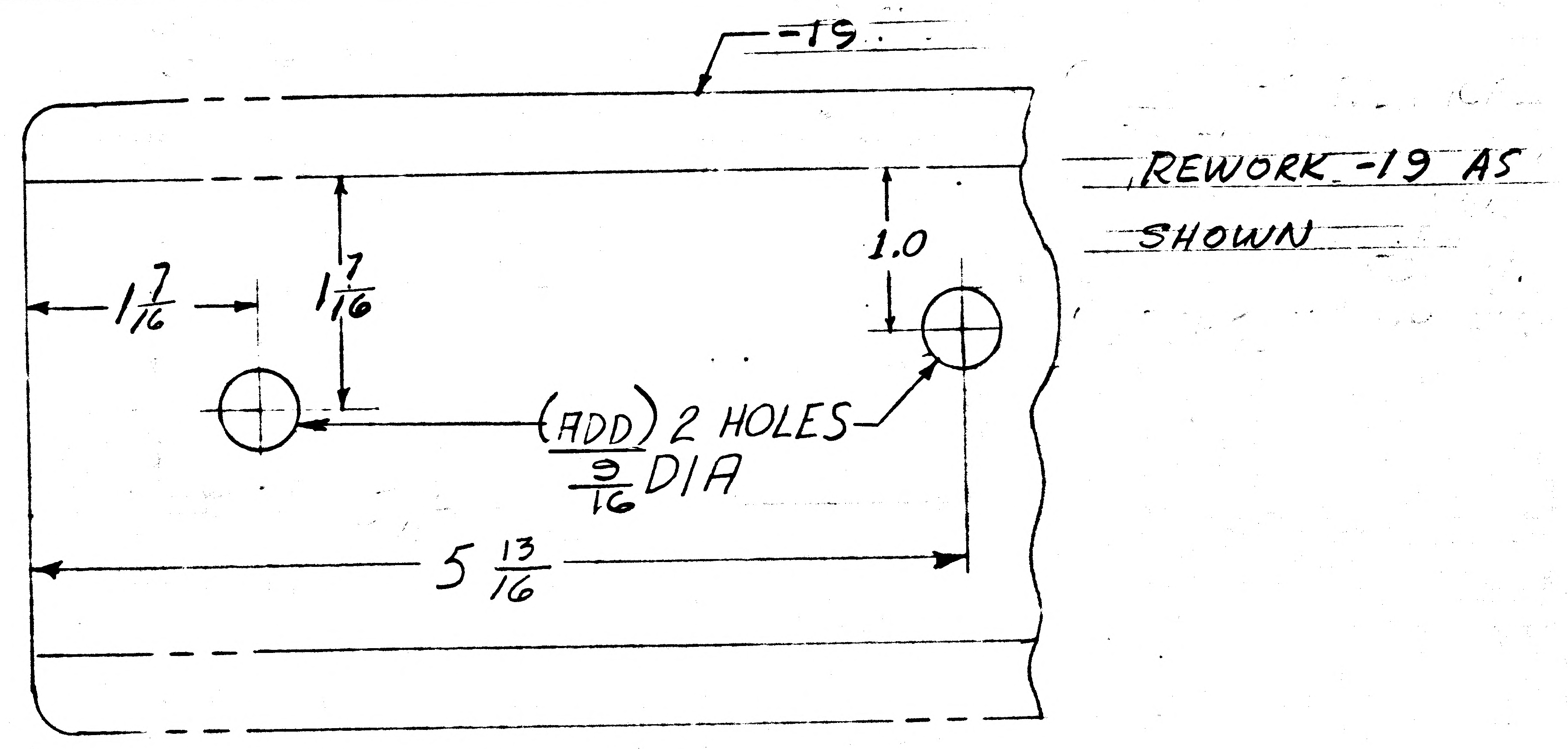
LDW280-18461 A

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18461		EO NO. A1	
CONTROL INFO NO. LDW 280 B 2496			



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13 (5)

REASON FOR EO: ADD PROVISIONS FOR SEQ BAY DOOR CABLE RUNS.

DESCRIPTION OF EO: ON-19, ADDED 9/16 DIA HOLES (2)

GAEC EO RELEASE: JK 3/14/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 4 (34) THRU	
LM		LM 15 (45) &	
LM		DYT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY				PST	WBwjld			
				DATE	3/11/68			3/11/68	3/12/68		3/12/68	3/13/68
REVISE DWG	RECORD EO	REWORK	SCRAP	G	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S - SEQ BAY UPPER DECK - CABLE BRACKET SPT	LDW 280-18461	A1

3-8-68
ISSUED BY T. COTTER x3352 / J. LANG / P. THORJUSEN SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

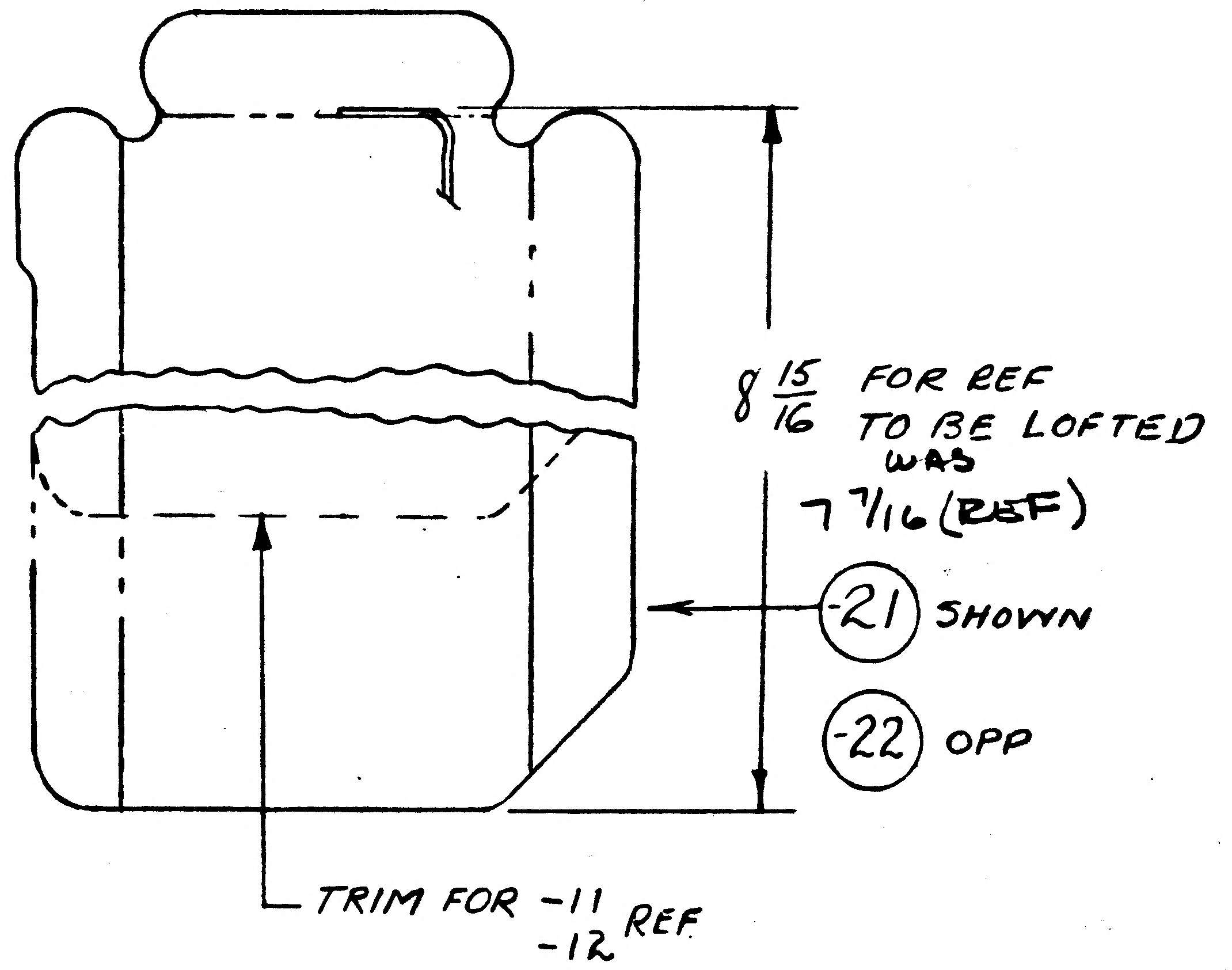
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18461 | EO NO. A2
CONTROL INFO NO. LM-2-4699

IN DWG/FLD, B/M & MOD/BLK

CREATE -21 & -22 IDENTICAL TO -11 & -12 EXCEPT FOR OVERALL LENGTH AS SHOWN

DELETE -11, -12



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586

REASON FOR EO: PART TOO SHORT TO PICK UP RIVET PATTERN ON ASSEMBLY

DESCRIPTION OF EO: IN DWG/FLD, B/M & MOD/BLK
ADDED -21 & -22
DELETED -11 & 12

GAEC EO RELEASE: C (2)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11 -12

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JaP			—	caw		JaP
DATE	5/18/68			—	5/9/68		5/18/68

PRIORITY: C

DRAWING TITLE: CHANNEL DESCENT STAGE-SCIENTIFIC EQUIP BAY UPPER DECK-CABLE BRACKET SUPPORT

DRAWING NO. LDW280-18461

EO NO. A2

ISSUED BY LIAISON GLENN BRONSON 3604 SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

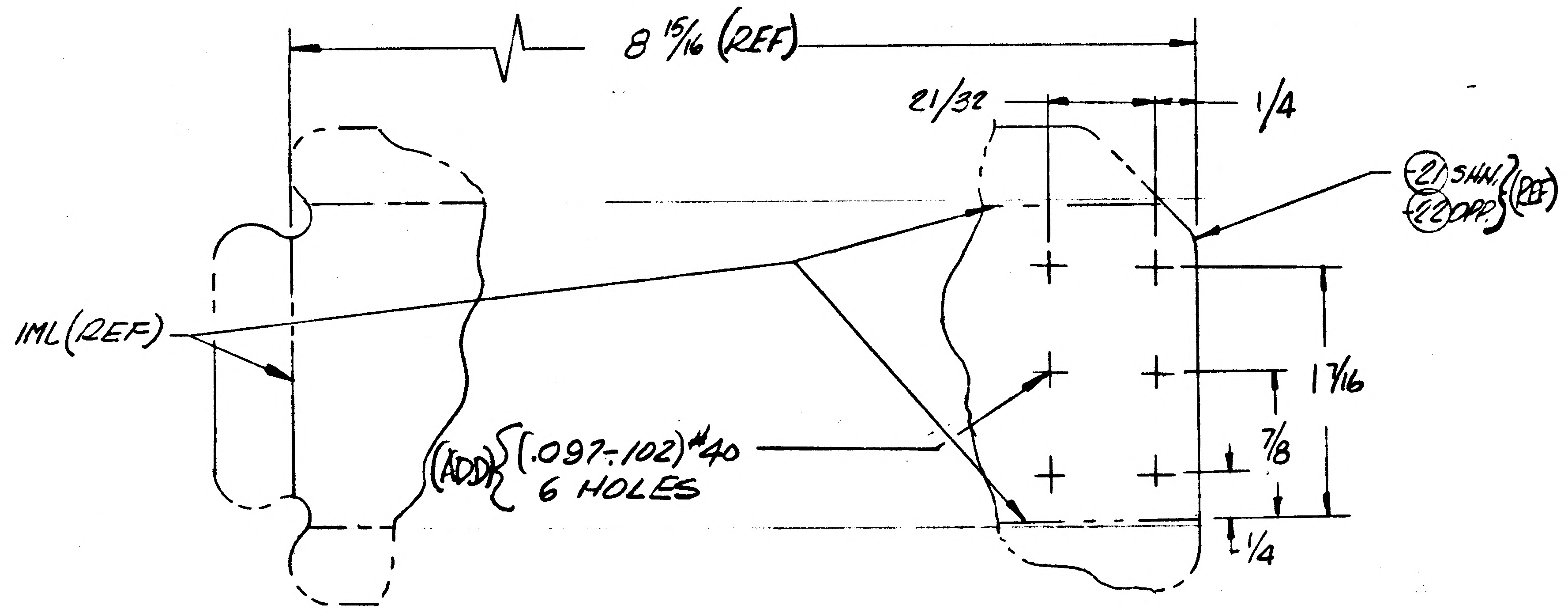
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18461 | EO NO. A3

CONTROL INFO NO. LDW280 B 3322

IN F/D! ON -21 & -22 ADD PILOT HOLES AS SHN.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 PKG 13 (5)

REASON FOR EO: TO FACILITATE LOCATING RIVETS ON INSTL.

DESCRIPTION OF EO: ON -21 & -22, ADDED (.097-.102) #40, (6) HOLES.

GAEC EO RELEASE: JK 5/13/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU LM-15(45)	
		& DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓

APPROVED BY	JAS			P&T			JAP	
DATE	5/8/68			5-8-68	5/8/68		5/8/68	5-13-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: CHANNEL - DESCENT STAGE & SCIENTIFIC EQUIP BAY - UPPER DECK - CABLE BRACKET SUPPORT

DRAWING NO.: LDW280-18461

EO NO.: A3

051768

ISSUED BY J. TAVARES (X1681) / P. THORJUSEN (X1153) SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO. *	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19	SEE DWG	4	A2 ✓
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2 ✓
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4 ✓
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3 ✓
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4 ✓
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO. *	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: ⑧ C JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

	APPROVED BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	JHS				NJH			
DATE	5/13/68			5-13-68	5/17/68		5/13/68	5-17-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C | DRAWING TITLE: SEE DRAWING | DRAWING NO.: LEO 280 | EO NO.: 950

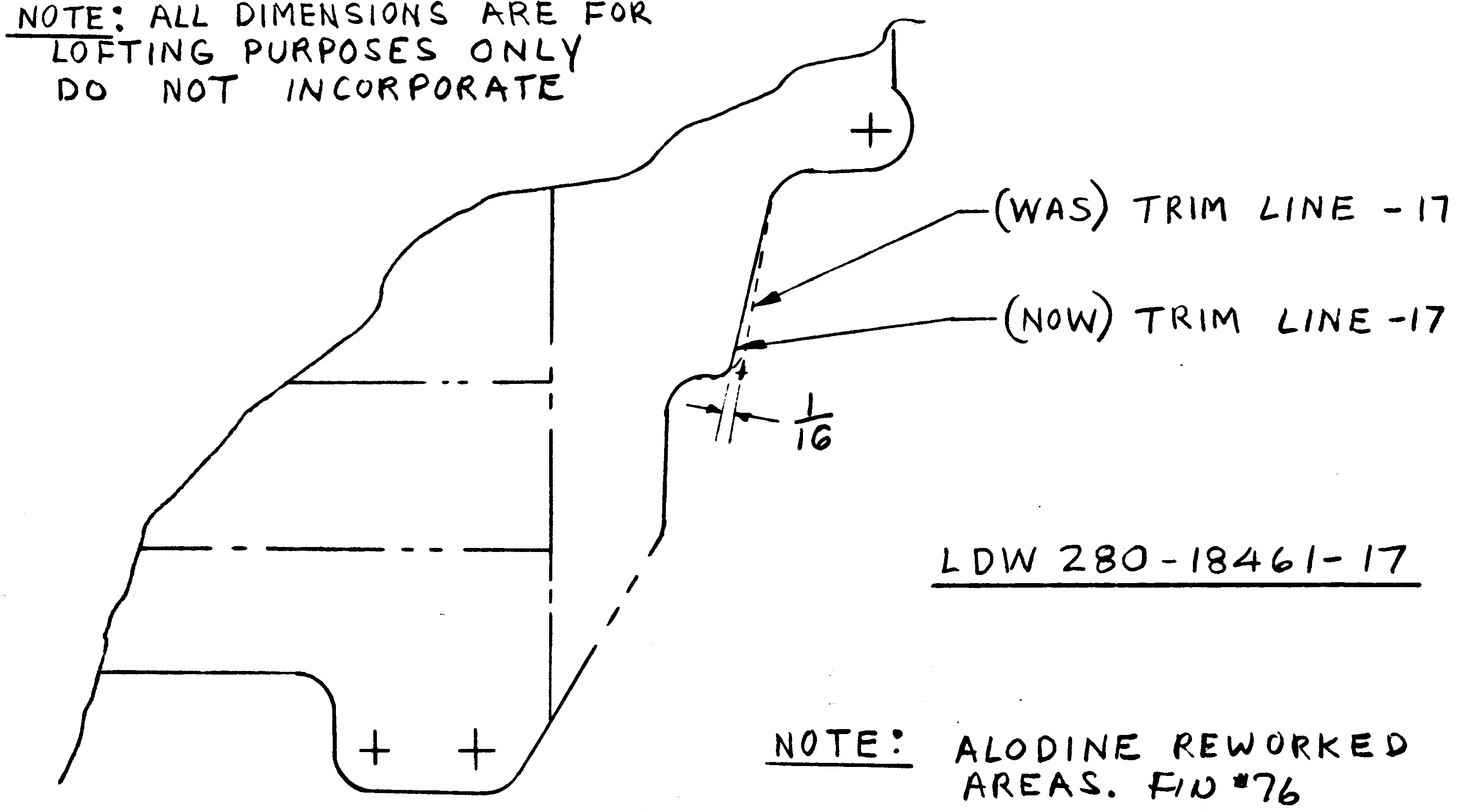
5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18461		EO NO. A5
CONTROL INFO NO. LM-2- 4944		

NOTE: ALL DIMENSIONS ARE FOR LOFTING PURPOSES ONLY DO NOT INCORPORATE



NOTE: ALODINE REWORKED AREAS. F/N #76

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA1H1 CCA586 PKG 13, LCD3075 CCA586 PK 6 20 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PERMIT WASHER INSTALLATION	ON -17, IN F/D REVISEDTRIM	1C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM15(45)	
		TM-5/R (65)	
		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				2	J.M	Ctf		
DATE					9.12.68	9/12/68	10/2/68	9-16-68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL, DESCENT STAGE-SCIENTIFIC EQUIP BAY, CABLE BRACKET SUPPORT	LDW280-18461	A5

ISSUED BY LIAISON J. KAST 9/10/68 x3605 SECTION VDI GROUP NO. 280 PL 25

01

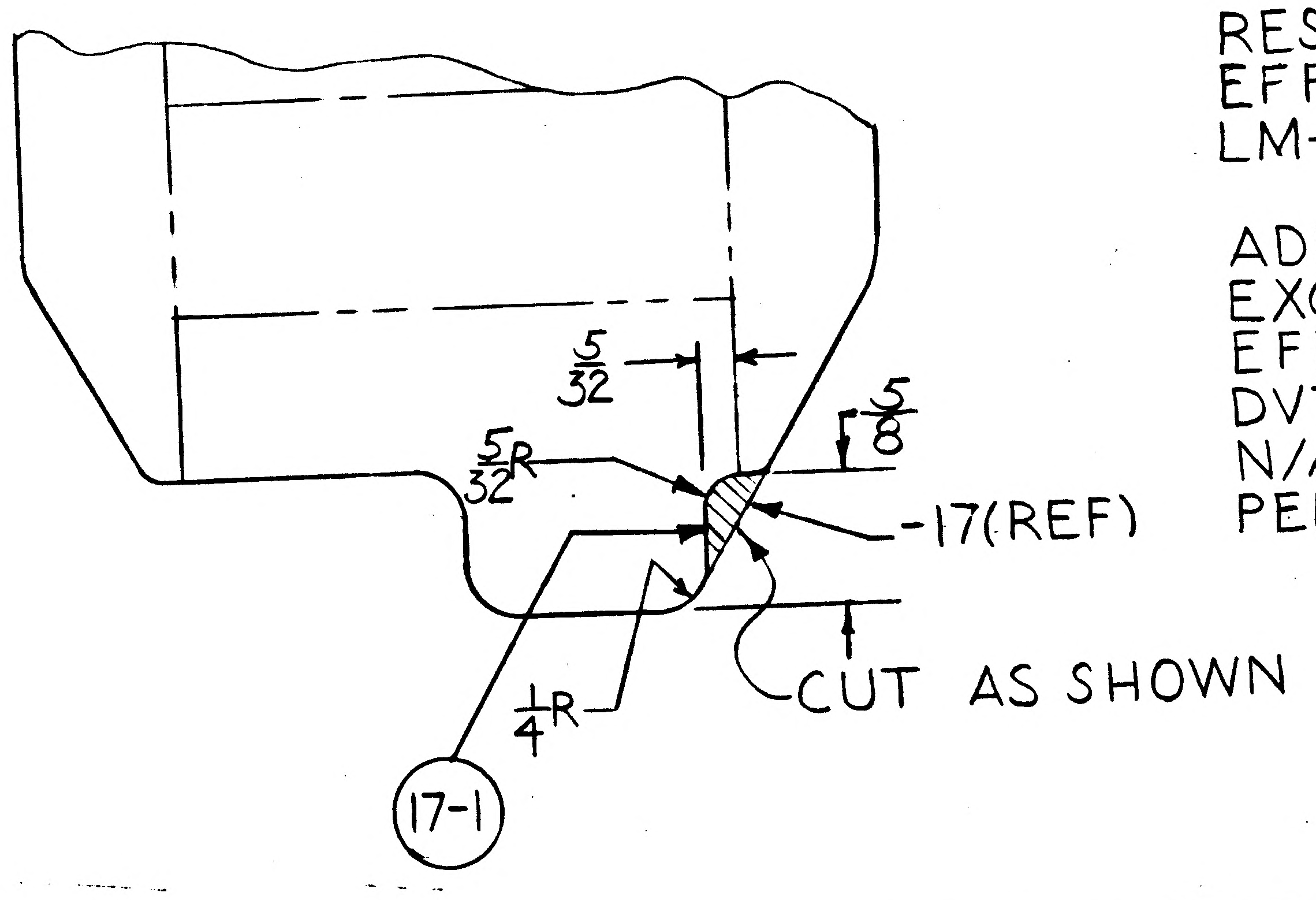
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18461		EO NO.	A6
CONTROL INFO NO. LDW 280 B5736			



RESTRICT -17 TO LM-4(34)
EFF (WAS) LM-4(34) THRU
LM-15(45), DVT(70), TM5/R(65)

ADD -17-1 IDENT. TO -17
EXCEPT AS NOTED -17-1
EFF LM-5(35) THRU LM-15(45),
DVT(70), TM5/R(65)
N/A LDW280-54679 1 REQD.
PER MODULE

LCD3075 CCA586 PKG2V PAGE 29.1 (5)
LCD.1433 CCA586 CCA1111 PKG13 PAGE12

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	GAEC EO PRF	C

REASON FOR EO: CLEARANCE REQD. BETWEEN ALSEP & BRACKET

DESCRIPTION OF EO: ADDED -17-1
RESTRICTED -17 TO LM-4(34) EFF(WAS) LM-4(34) THRU LM-15(45), DVT(70), TM5/R(65)

JK 10/5/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	TM5/R(65)		
LM	DVT(70)		
LM	LM-5(35) THRU LM-15(45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	10/1/68			10/3/68	10/2/68		10/3/68	10-4-68
G	V.DI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

Stress group: WB

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D.S. - SEQ BAY UPR DECK CABLE BRACKET SUPPORT	LDW280-18461	A6

10-11-68
ISSUED BY W. FOLTERMAN / P. THORJUSEN X86046 SECTION V.DI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1338
CONTROL INFO NO. LDW280B 7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464	A5	
-18465	A4	
-18466	A5	
-18467	A4	
-18468	B1	
-18469	A2	
-18470	A4	
-18471	A5	
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3587 PKG 55 PG. 1 CC.+ 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/15/69 KSE 4-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	ASSD
APPROVED BY				PBT	WH			
DATE	4/11/69			4-2-69	4/1/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LE0280

EO NO. 1650

CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 - 18374	SEE DRAWING	LDW280-54679	A6
/	-18375		-54679	A6
/	-18513		-54679	A8
/	-18489		-54679	A5
/	-18460		-54679	A6
/	-18461		-54679	B2
	-18469		-54679	A4
	-18470		-54679	A6
	-18506		-54679	A5
	M17884		-54679	B2
	-18560		-54679	A5
	LDW 280 - 18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — N/C [illegible]

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					W/A			
DATE	8-8-69			8/8/69	8/12/69		8/12/69	8/21/69

GAEC EO RELEASE: SAB 8-21; JK 8/29/9

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LE0280

EO NO.: 1650

F-2669

ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1651
CONTROL INFO NO. LDW 280B 8258

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

	DRAWING Nº *	TITLE	CHANGE Nº
✓	LDW280-18435	SEE DWG	B5
✓	436		C3
✓	438		C2
✓	439		C3
✓	457		A3
✓	458		B2
✓	459		A5
✓	460		A7
✓	461		B3
	LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY					M		
DATE	7-29-69			7/ /69	8-2-69		8/29/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280

EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280-			SEE DWG.
✓ -18374-19(4) **	B1	*LDW280-54679	
✓ -18375-12,-17(4),-19 **	A8		
✓ -18489-11,-13,-15(2),-17,-18,-19 **	A6		
✓ -18460-17,-19,-21,-23,-25 **	A8		
✓ -18461-13(2),-15(2),-19,-21,-22 **	B4		
-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
-18470-11,-13,-15,-19,-21 **	A7		
M17884 -13-1(2) **	B3		
LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

GAEC EO RELEASE: (R)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	PJT				NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO. LE0280

EO NO. 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN

SECTION VEH. DES. INT.

GROUP NO. 335

PL 25

01

NAS 9-1100

LDW280-18464

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54602	LM-4 (34)	1 EA
PART NO. LDW280-18464-11, -13, -15 & -17		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 | JK (001) MP-16 1/31/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433, CCA 586
OK

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO 1/19/68	WEIGHTS	
LAYOUT BY	G. HANSMANN	RELIABILITY	
CHECKED BY	WCG 1/23/68	THERMO	
GP LEADER	1-29-68		
VEH DES INT	1/30/68		
STRUCTURES	UNM W/H 1/31/68	PROJ ENGR	1/30/68
STRUCTURES	1/31/68	REL GROUP	1-31-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC EQUIP BAY DOOR-
THERMAL SHIELD SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18464 | (-)

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-66

CDR 2-2-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18464-17	E	WEB	AL ALLOY SH	QQ-A-250/12	7075	.020 x 13 x 17	T6	88	4C
		-15	↕	↕	↕	↕	7075	.020 x 16 x 19	T6	↕	5D
		-13	↕	↕	↕	↕	7075-T6	.020 x 7 x 18	NONE	↕	7E
		LDW280-18464-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.020 x 7 x 18	NONE	88	7C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

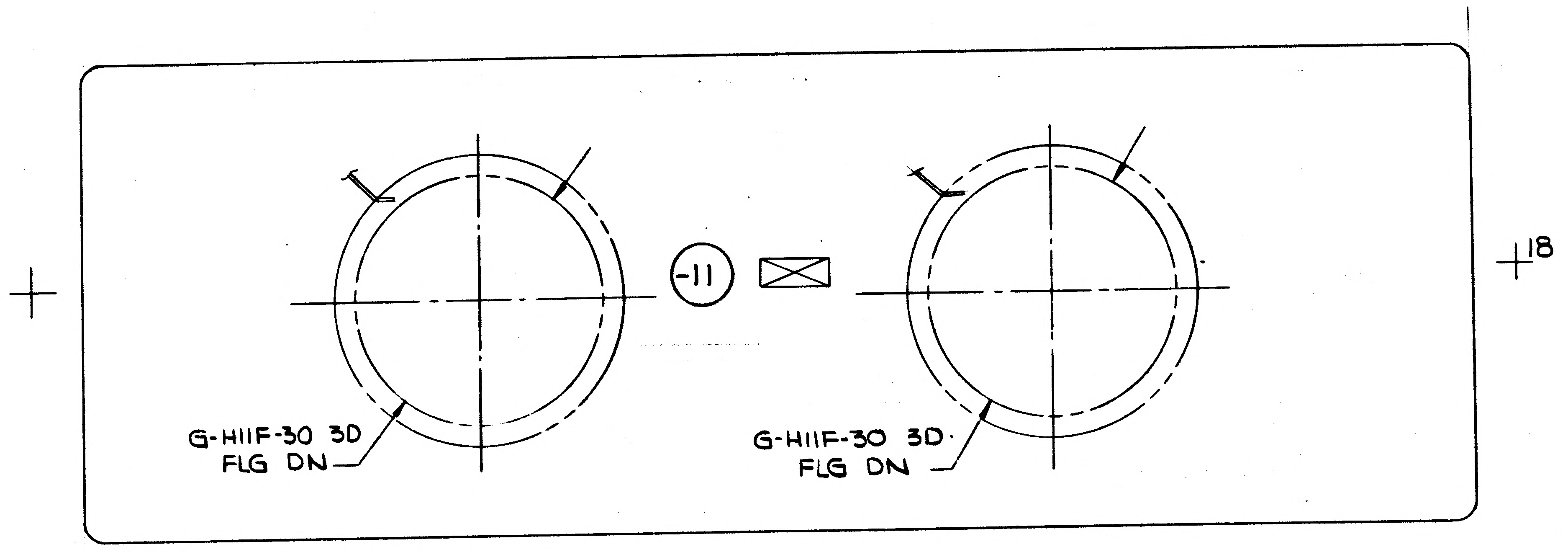
SIZE	CODE IDENT NO.	
B	26512	LDW280-18464

SCALE NONE SHEET 2

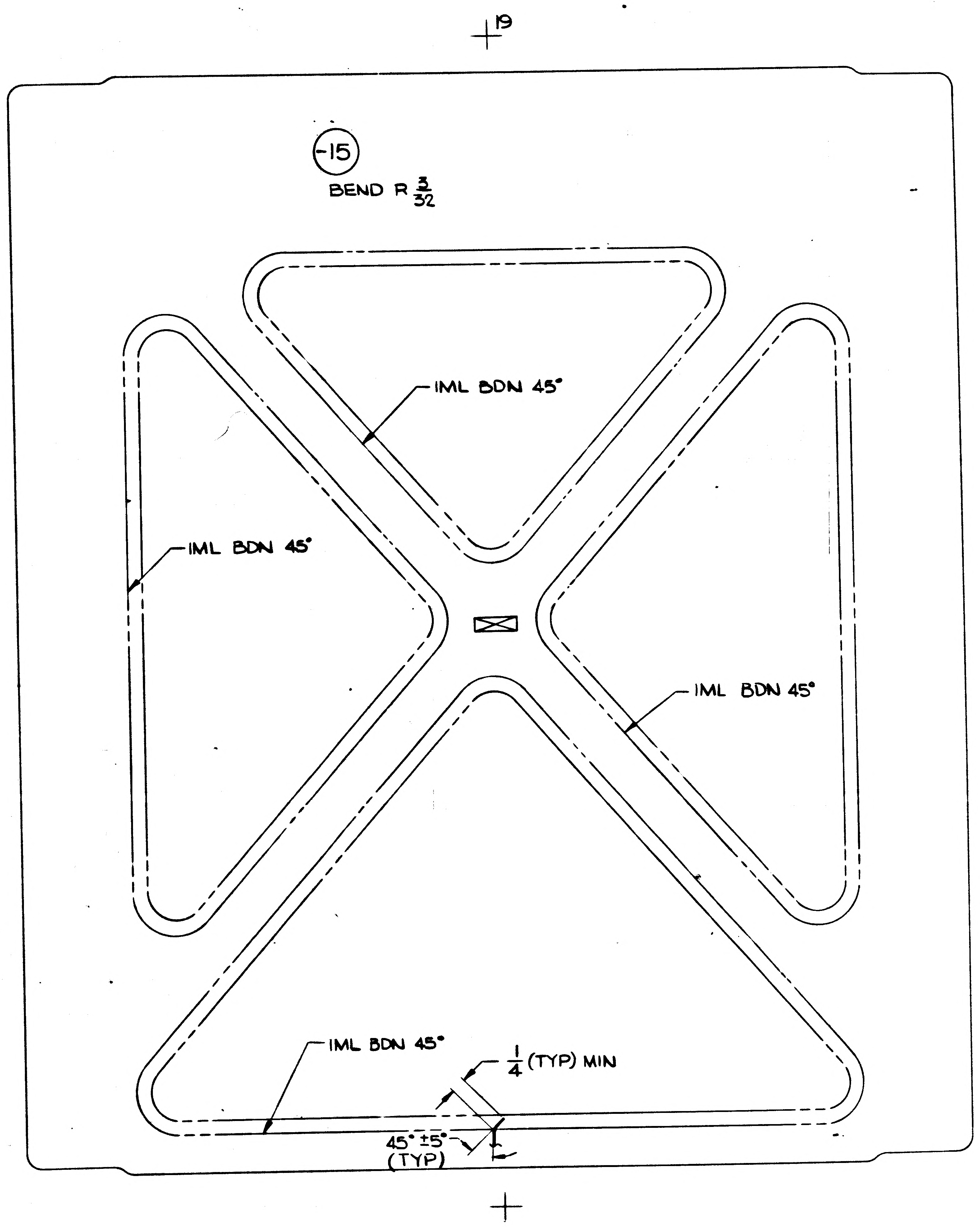
ENG 77.2 7-65

01

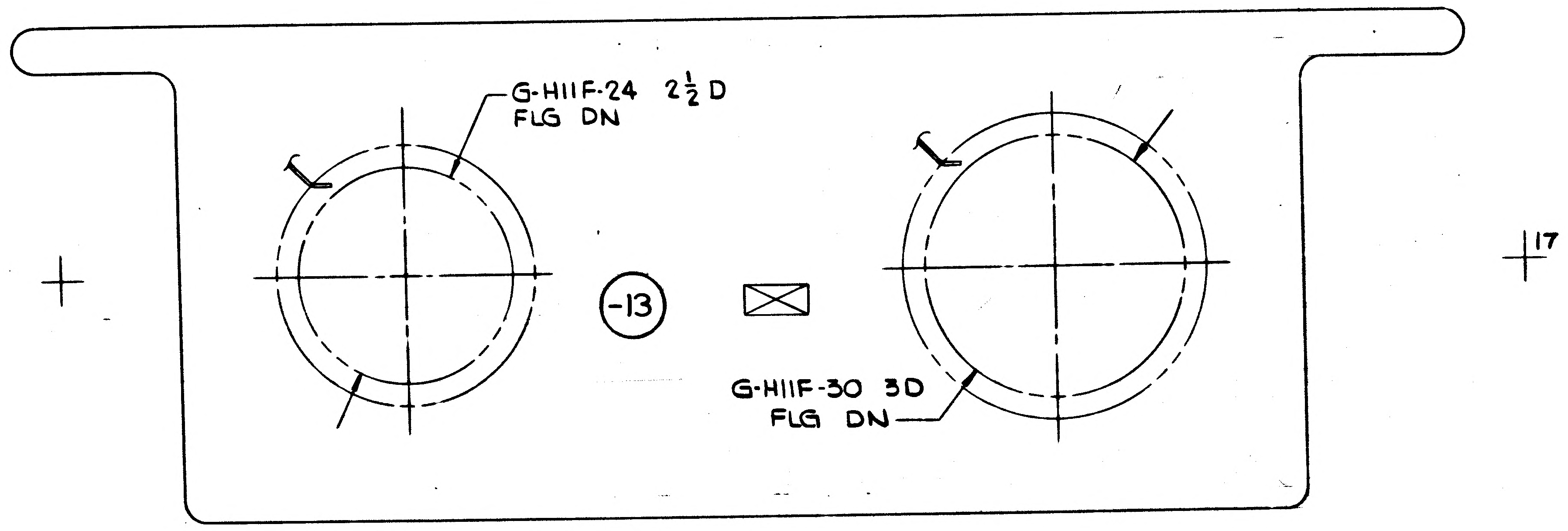
NAS 9-1100



-11
G-H11F-30 3D
FLG DN
G-H11F-30 3D
FLG DN
18



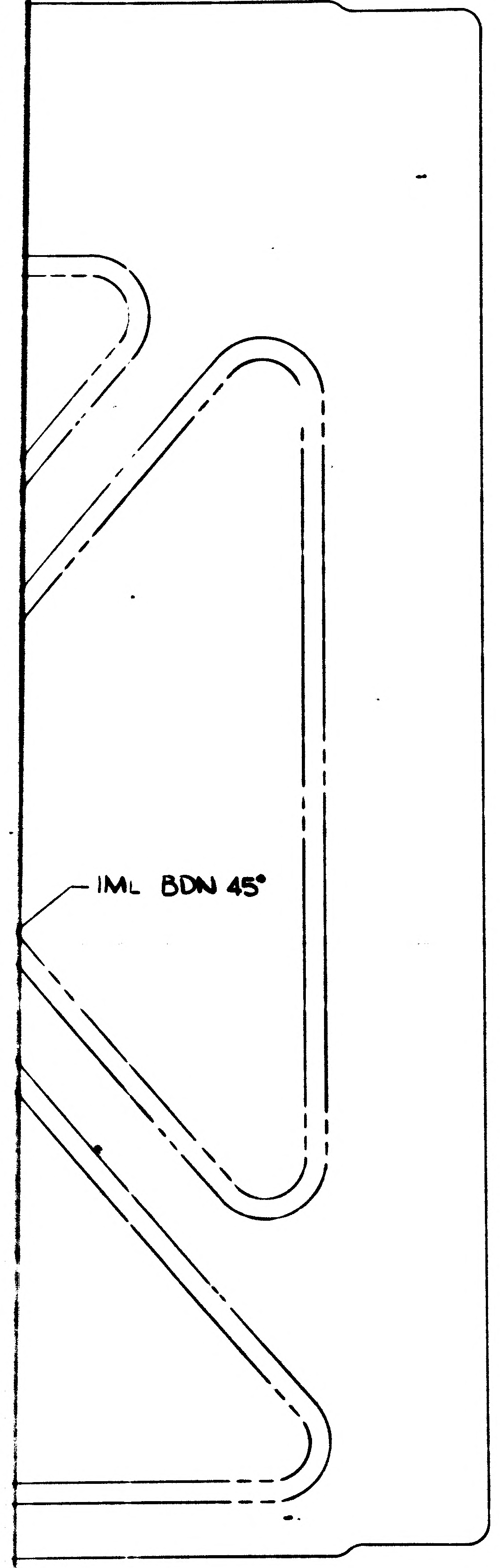
19
-15
BEND R $\frac{3}{32}$
IML BDN 45°
IML BDN 45°
IML BDN 45°
IML BDN 45°
$\frac{1}{4}$ (TYP) MIN
45° ±5°
(TYP)

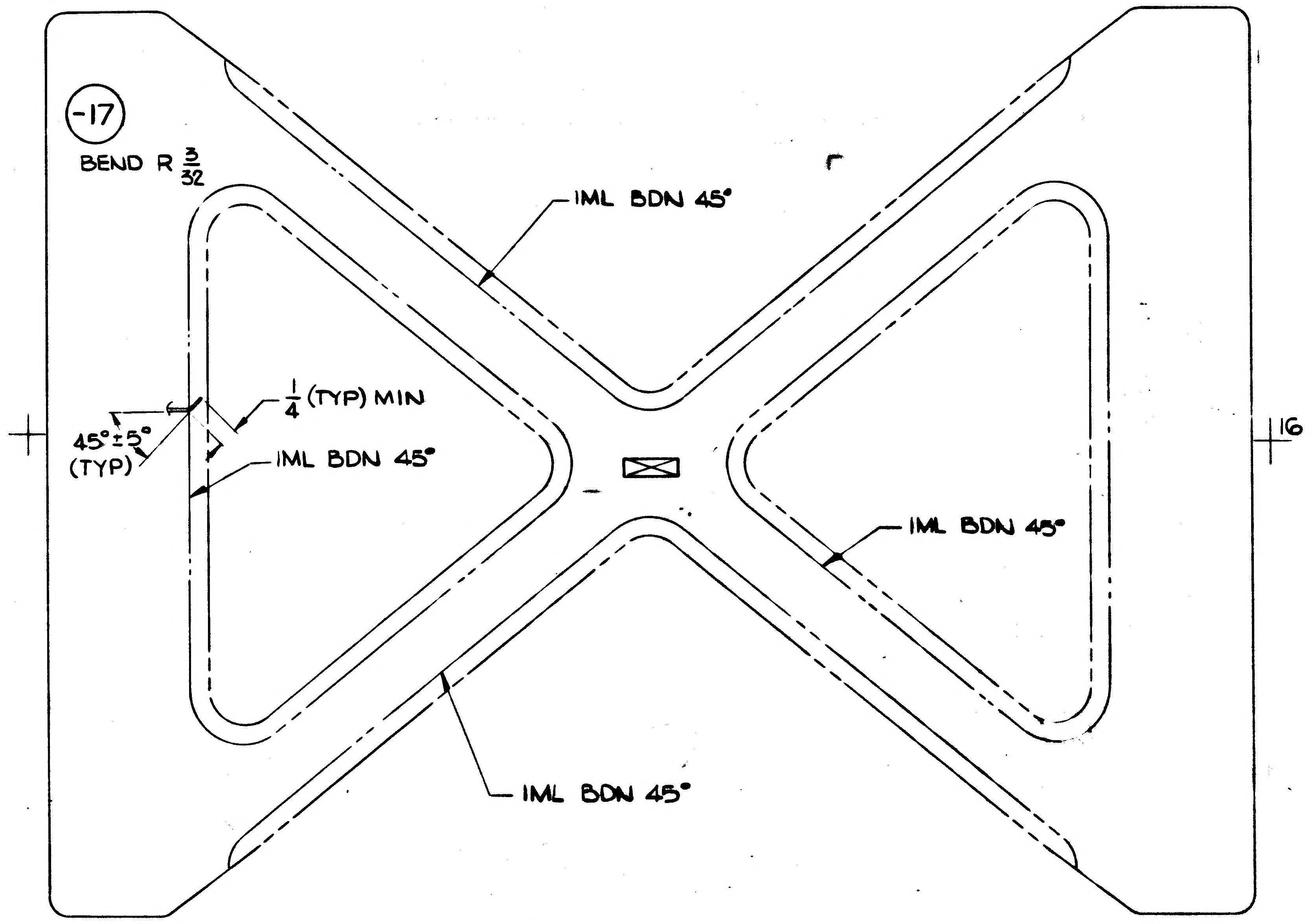


G-H11F-24 $2\frac{1}{2}$ D
FLG DN
-13
G-H11F-30 3D
FLG DN
17

01/02 NAS 9-1100

CODE IDENT NO.		SH
26512	LDW280-18464	3





70
30

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ✓ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ✓ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± $\frac{1}{32}$	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99) = 25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.5 SQ. FT.

PRINT TRIM LINE

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS.

LDW280-18464

LDW280-18464

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

	SIZE	CODE IDENT NO.	
LM MODEL OR END ITEM	J	26512	LDW280-18464
	SCALE FULL		SHEET 3.00

FOR PHOTO | REPRODUCTION 2FR K2

IDENT NO.		SH
6512	LDW280-18464	3

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 966
CONTROL INFO NO. LDW280 B-3249

ENG 32.2 REV 3-65

ADD TM-5/R(65) EFF TO THE FOLLOWING DWGS & DASH NOS.

DWG NO. (*)	NO REQD PER VEH	N/A	TITLE	CHG NO
/				
/				
/				
LDW280-54837-3	1	LDW280-54602	SEE DWG	
-54837-5	1			A7
-54837-7	1			
-18464-17	1			
-18464-11	1			A1
18464-13	1			
18464-15	1			
18465-11	2			
-12	2			
-13	1			A1
-14	1			
-15	1			
-17	1			
18465-19	2			
18466-11	1			
-12	1			
-13	1			
-14	1			A1
-15	2			
-16	2			
-17	2			
18466-18	2			
18467-11	1			
-13	1			
-15	1			A1
-17	1			
LDW280-18467-19	1	LDW280-54602	SEE DWG	

DWG NO.	NO REQD PER VEH	N/A	TITLE	CHG NO.
/				
LDW280-18474-11	1	LDW280-54602	SEE DWG	
-12	1			
-13	1			
-14	1			A1
-15	1			
-17	1			
18474-19	1			
18523-11	1			
-13	2			
-15	2			A1
-17	2			
18523-19	1			
18523-14	2			
—				
M17845-11	1			A2
M17839-11	4			A2
M17841-11	2			A1
M17843-11	2			A2
M17844-11	1			A1
M17844-12	1			
M17846-11	1			A1
LDW280 M17846-12	1	LDW280-54602	SEE DWG	
/				
/				
/				
/				
/				
/				
/				

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3075CCA 586 PKG 2I (5)

REASON FOR EO: TO INCLUDE ALSEP ON TM-5/R(65)

DESCRIPTION OF EO: ON (*) ADDED TM-5/R (65) REQMTS

GAEC EO RELEASE: JK 5/23/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

	APPROVED BY	DATE
	AW	5/13/68
VDI		
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	PSF	5-13-68
STRESS GROUP	W/H	
LIAISON ENGRG		
PROJ ENGRG		5/13/68
		5-21-68

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 966

5-17-68
ISSUED BY: W MAJUK X3352

SECTION: VDI

GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 982
CONTROL INFO NO. LDW280B2910

FOR ALL PART NO'S LISTED BELOW ADD LTA 8 (18) EFFECTIVITY WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR N/A LDW280-54602, LM-4(34) VEHICLE:

*PART NUMBERS	N/A	CHANGE NO.
LDW280M17862-37,-59, -39,-51 & -53	LDW280-66602	B2
LDW280M17846-11,-12	↑	A2
LDW280M17845-11,		A3
LDW280M17844-11,-12		A2
LDW280M17843-11		A3
LDW280M17841-11		A2
LDW280M17839-11		A4
LDW280M17804-19,-21		A3
LDW280-18523-11,-13 -14 -15 -17 & -19		A2
LDW280-18474-11,-12, -13,-14,-15,-17 & -19		A2
LDW280-18467-11 -13 -15 -17 & -19		A2
LDW280-18466-11,-12, -13,-14,-15,-16,-17 & -18		A2
LDW280-18465-11 -12 -13 -14 -15 -17 & -19	↓	A2
LDW280-18464-11, -13 -15 & -17	LDW280-66602	A2

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1021-33 CCA 498 PKG 6 (5)

REASON FOR EO: TO ADD LM 4(34) REQ'M'TS ON LTA-8(18) VEHICLE

DESCRIPTION OF EO: ON -(*) ADDED END ITEM LFM 126 REQMTS.

GAEC EO RELEASE: 5/28/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
DATE	5/16/68	5/16/68		5-15-68	5/16/68		5/16/68	5-27-68
	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG FOR TITLE
DRAWING NO.: LEO 280
EO NO.: 982

5-17-68
ISSUED BY J. FIORELLO (X1681) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

LFM

ENG 32.2 REV

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 995
CONTROL INFO NO. LDW 280 B3475

FOR THE FOLLOWING DWG'S ADD M3/FVV (03) REQUIREMENTS FOR THE NEXT ASSY & QUANTITIES NOTED.

	DWG NUMBER (*)	TITLE	NEXT ASSY.	QTY/MOD	CHG NO.
✓	LDW280-54742-1,3 & -5	✓	LMU280-31216	1 EACH	A2
✓	LDW280P18282-1	✓	LMU280-31216	1	A9
✓	LDW280-66837-1 & -3		LMU280-31218	1 EACH	A2
✓	LDW280-66793-1 & -3	✓		2 EACH.	A1
✓	LDW280-18464-11,-13,-15,-17	✓		1 EACH.	A3
✓	LDW280-18465 -11,-12,-19 -13,-14,-15,-16	✓		2 EACH. 1 EACH.	A3
	LDW280-18466 -11,-12,-13,-14 -15,-16,-17,-18	✓		1 EACH. 2 EACH.	A3
	LDW280-18467-11,-13,-15,-17,-19	✓		1 EACH	A3
	LDW280-18474-11,-12,-13,-14,-15,-17,-19	✓		1 EACH.	A3
	LDW280-18523 -11, -19 -13,-14,-15,-17	SEE DWG		1 EACH. 2 EACH	A3
	LDW280M17845-11			1	A4
	LDW280M17839-11			4	A5
	LDW280M17841-11	✓		2	A3
	LDW280M17843-11	✓		2	A4
	LDW280M17844-11,-12	✓		1 EACH	A3
	LDW280M17846-11,-12	✓		1 EACH.	A3
	LDW280M17804 -19 -21	✓	LMU280-31218	4 2	A4
	LDW280-54767-1,-3,-5,-7	✓	LMU280-31217	1 EACH.	A2
	LDW280-18562-11 -13 -15,-17,-19	✓	LDW280-66674	7 2 1 EACH.	A4
	LDW280-54647-1	✓	LMU280-31216	1	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3049 CCA 1064 PKG 3 & 4	(5)

REASON FOR EO: UPDATE M3 MOCKUP TO LM-4 QUAD II CONFIGURATION.

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 164 REQMTS.

GAEC EO RELEASE: C JK 6/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV (03)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)
PRIORITY: C

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				RST	WH			
DATE	5/24/68			5 24 68	5/24/68		5/24/68	6-4-68
	V.D.I.							

DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 995

5-24-68
ISSUED BY G. HANSMANN X 3352 SECTION V.D.I. GROUP NO. 280 PL 25

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NAS 9-1100

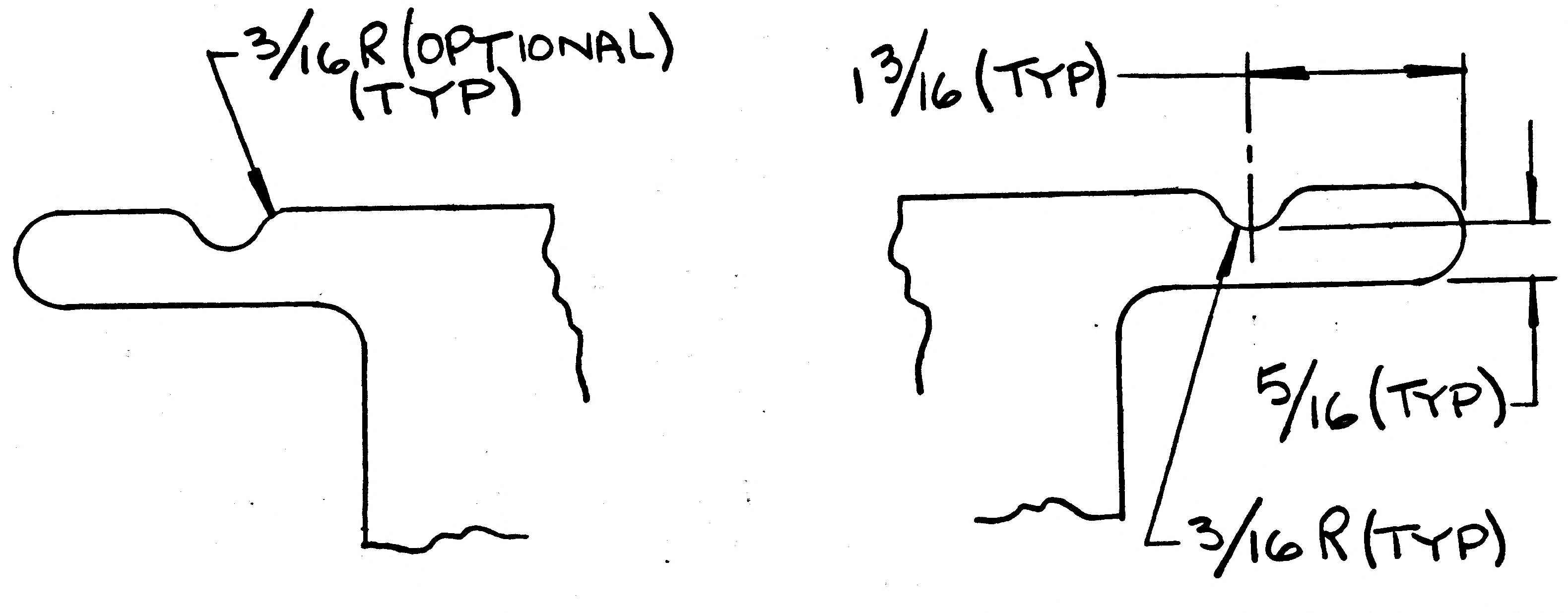
/

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18464		EO NO. A4	
CONTROL INFO NO. LM-5-20297			

REVISE TRIM OF -13 AS SHOWN:



NOTE: DIMENSIONS ARE NOT TO BE ADDED TO LOFTED DWG.

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075 CCA 1111 LCD 1433 CCA 586	⑤ ⓓ C

REASON FOR EO: CLEARANCE REQD FOR CABLE INSTALLATION

DESCRIPTION OF EO: REVISED TRIM OF -13

GAEC EO RELEASE: V/C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45) LM-5/R (65) DES. VERIF. TEST (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	5	VDI			7-31-68	7-31-68	8/2	8-6-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB ~ D/S ~ SCIENTIFIC EQUIP. BAY DOOR ~ THERM. SHIELD SUPT.	LDW280-18464	A4

ISSUED BY LIAISON/ART WILSON X86755 7/26/68 SECTION VD1 GROUP NO. 335 PL. 25

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ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW280B 7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	
-18465	A4	
-18466	A5	
-18467	A4	
-18468	B1	
-18469	A2	
-18470	A4	
-18471	A5	
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/25/69 2-5-6 8-2-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
APPROVED BY				PST	WJH			
DATE	4/18/69			4-2-69	4/15/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280		EO NO. 1651
CONTROL INFO NO. LDW280B 8258		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

	DRAWING № *	TITLE	CHANGE №
✓	LDW280-18435	SEE DWG	B5
✓	436		C3
✓	438		C2
✓	439		C3
✓	457		A3
✓	458		B2
✓	459		A5
✓	460		A7
✓	461		B3
✓	LDW280-18464	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-21-69
JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY	CBT				M				
DATE	7-29-69			7-31-69	8-2-69		7/31/69	8/26/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1651

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1826
CONTROL INFO NO. LDW280B9843

FOR ALL DASH NOS LISTED BELOW DELETE LTA-11(23) REQ'TS FOR THE NOTED NEXT ASSY'S

DRAWING NO	DASH NO *	TITLE	NEXT ASSY	CHANGE NO
✓ LDW280-18464	-11, -13, -15, -17	SEE DWG	LDW280-54602	A7
LDW280-18465	-11, -12, -13, -14, -15, -17, -19	↑	↑	B1
LDW280-18466	-11, -12, -13, -14, -15, -16, -15-1, -16-1, -17, -18			B1
LDW280-18523	-11, -13, -14, -15, -17, -21			A7
LDW280M17839	-11			B2
LDW280M17841	-11			A6
LDW280M17843	-11			A7
LDW280M17844	-11, -12			A6
LDW280M17845	-11	↓	↓	B2
LDW280M17846	-11, -12	SEE DWG	LDW280-54602	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 103 (5)

REASON FOR EO: SEQ BAY DOOR NOT REQD ON LTA-11

DESCRIPTION OF EO: FOR * REMOVED LTA-11(23) REQMTS

GAEC EO RELEASE: 1-28-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RSH						RST	
DATE	1-26-70			1/26/70	1/26/70		1-27-70	1/28/70

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1826

CDR 013070
ISSUED BY P. LANDRY / G. HANSMANN x87222 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18465 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-164	LMU280-31218	M3/FVV(03)	1 EA
LFM-126	LDW280-66602	LTA-8(18)	
LM	-54602	DVT(70)	
		LTA-11(23)	
		TM5/R(65)	
		LM-14(44)	
		THRU	
LM	LDW280-54602	LM-4(34)	1 EA

PART NO. LDW280-18465-13, -14, -15 & -17

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	DVT (70)	2 EA
LFM-164	LMU280-31218	M3/FVV(03)	
LFM-126	LDW280-66602	LTA-8(18)	
LM	-54602	LTA-11(23)	
		TM5/R(65)	
		LM-14(44)	
		THRU	
LM	LDW280-54602	LM-4(34)	2 EA

PART NO. LDW280-18465-11, -12 & -19

GAEC SCH NO. 52

MODEL OR END ITEM | NEXT ASSY | MODULE OR SER NO. GAEC SCH NO. | REQD PER MODULE OR END ITEM

PART NO.

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A							
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO C A

PRIM NO. 207. VK(00) MP-16A 1/29/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G | ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 (CCA586)

O.K.

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY G. ZARCADOOLAS 2-6-68
LAYOUT BY G. HANSMANN 2-9-68
CHECKED BY 2-6-68
GR LEADER 2/12/68
VEH DSGN INT J. Pusateri 2/12/68
STRUCTURES NM 2/
STRUCTURES TGB 2/16/68
WEIGHTS
PROJ ENGR J. Pusateri 2/12/68
REL GROUP J. Tagliaro 2-16-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
THERMAL SHIELD SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18465 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 02-16-68

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
											REWORK	SCRAP			
A	1	1.00 1.10				✓		LE0280-966 LCD3075 CCA586	ON -11, -12, -13, -14, -15, -17, -19 ADDED TM-5/R (65) REQT. ADDED SH 1.10.	TM-5/R	NOT	REQD	BILL OPITZ 1-19-70		
	2	1.00		LFM-126		✓		LE0280-982 LCD1021-33 CCA498	ON -11, -12, -13, -14, -15, -17, -19 ADD LTA-8(18) EFF WITH QUANTITIES REMAING THE SAME AS THAT GIVEN FOR N/A LDW280-54602 LM-4 (34) VEHICLE.	LTA-8	NOT	REQD			
	3	1.00		LFM-164		✓		LE0280-995 LCD3049 CCA1064	ON -11, -12, -13, -14, -15, -16 & -19 ADDED M3/FVV(03) REQT.	M3/FVV	NOT	REQD			
	4	1.00				✓		LE0280-1338 LCD3587 CCA1821	DELETED LM-15 EFF FROM -11, -12, -13, -14, -15, -17, -19	LM-15		✓			
	5	1.00				✓		LE0280-1551 LCD3890	ON -11, -12, -13, -14, -15, -17, -19 ADDED LTA-11(23) REQT.	LTA-11	NOT	REQD			
	6	1.00		LFM-164		✓		LCD3049 CCA1064	REF LE0280-995: -16 SHOULD BE -17 D7 JDCobb 1-21-70	M3/FVV	NOT	REQD	H.D.	1-20-70	1-29-70

CHG APPROVED

LTR	GROUP LDR	VEH. DSGN INT	STRUCT	STRUCT	WEIGHTS	PROJ ENGR	REL GRP
A	DYR 1-22-70 1/27/70	1-27-70		WJH 1/20/70			

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18465	A

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18465-19	E		CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032 X 3 X 4	T6	88	
	-17							.032 X 4 X 6			
	-15							.032 X 4 X 8			
	-14							.032 X 6 X 19			
	-13							.032 X 6 X 19			
	-12							.032 X 4 X 9			
	LDW280-18465-11	E		CHANNEL	AL ALY SH	QQ-A-250/12	7075	.032 X 4 X 9	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B	CODE IDENT NO. 26512	LDW280-18465
SCALE NONE		SHEET 2.00

ENG 77.2 5-64

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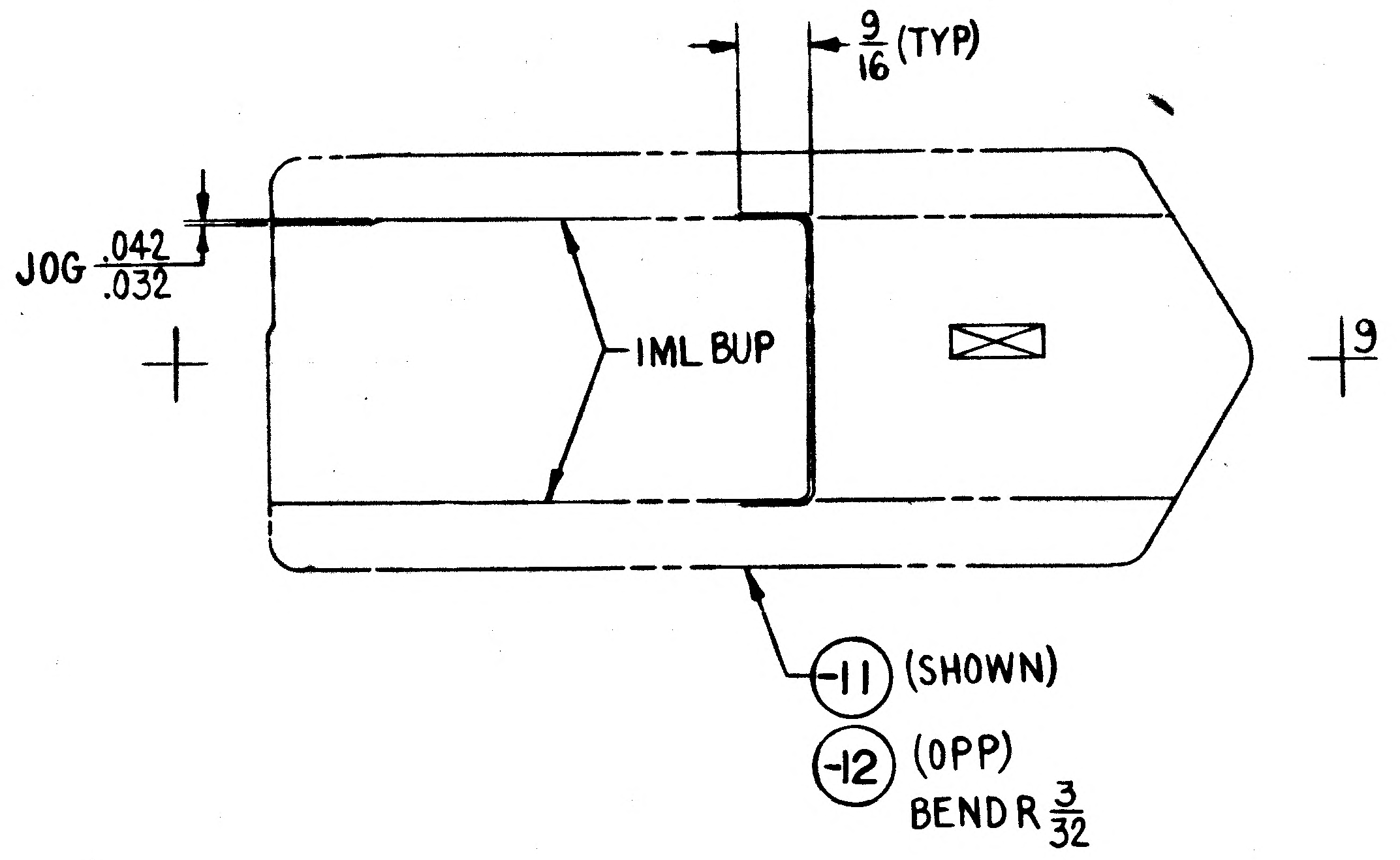
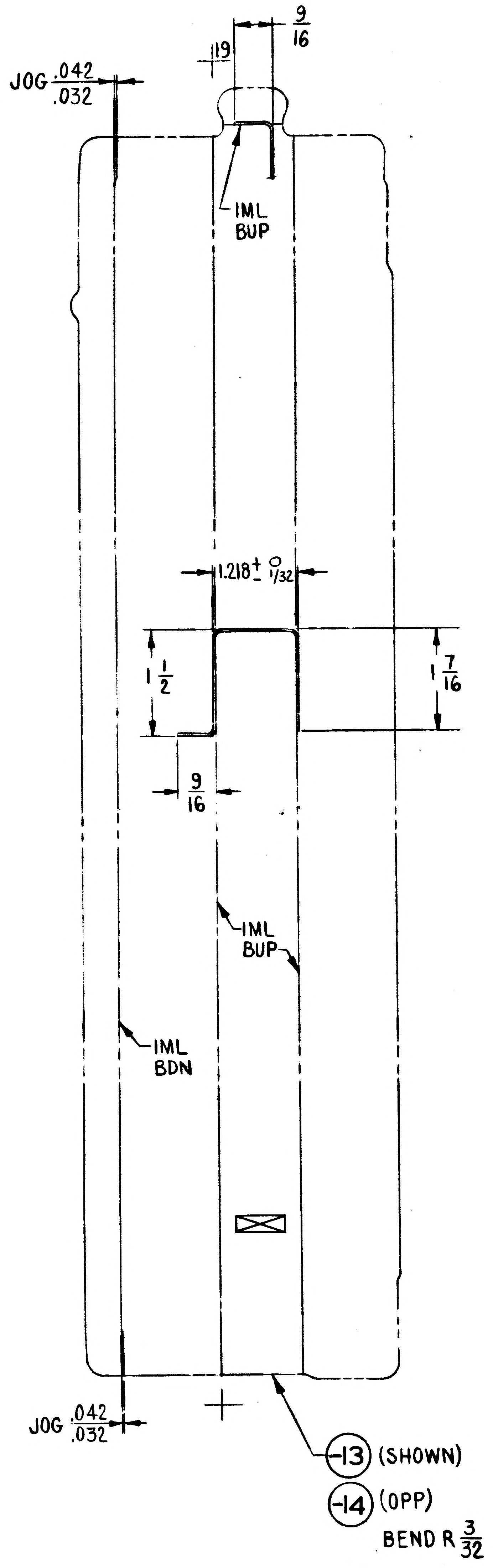
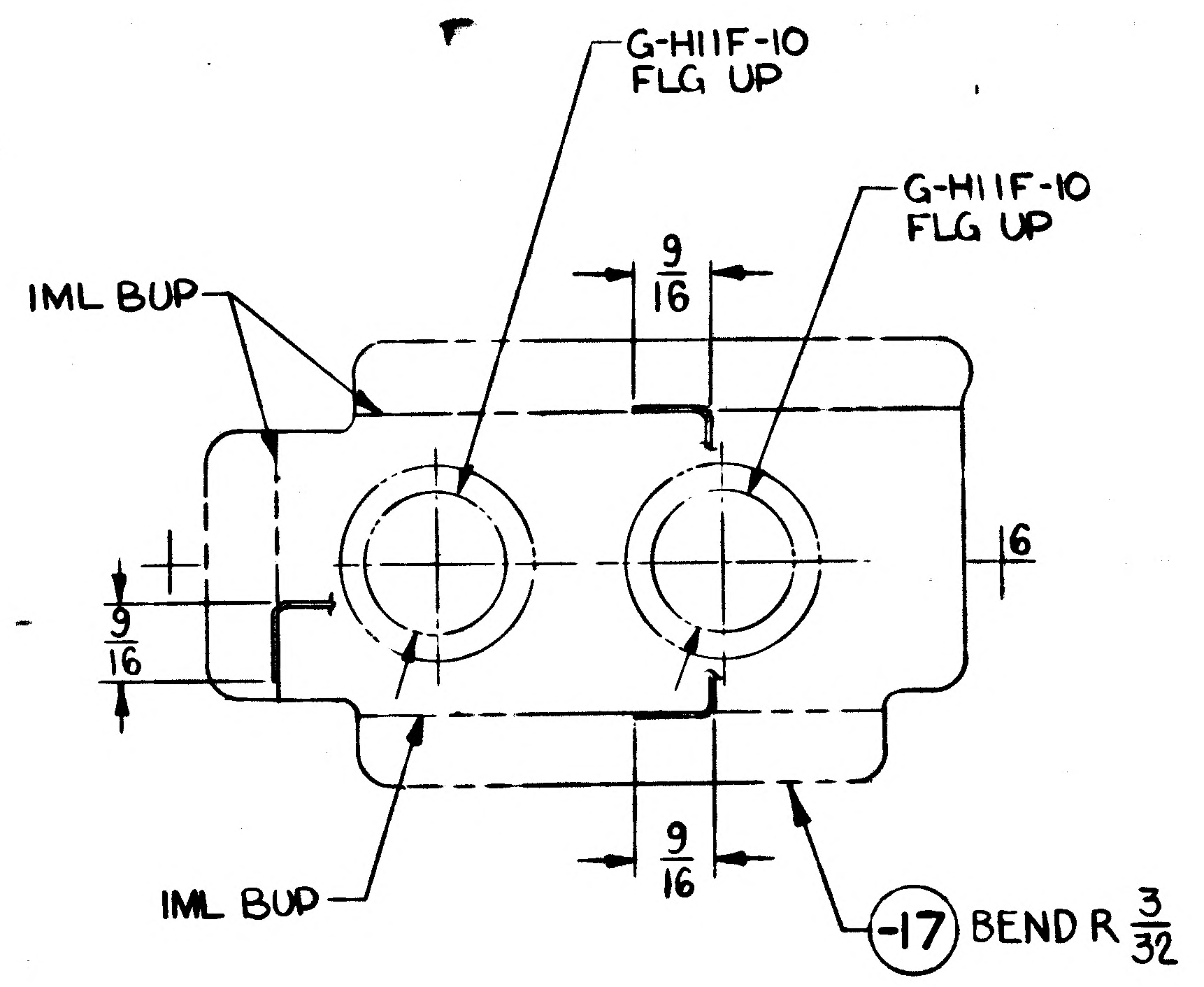
NAS 9-1100



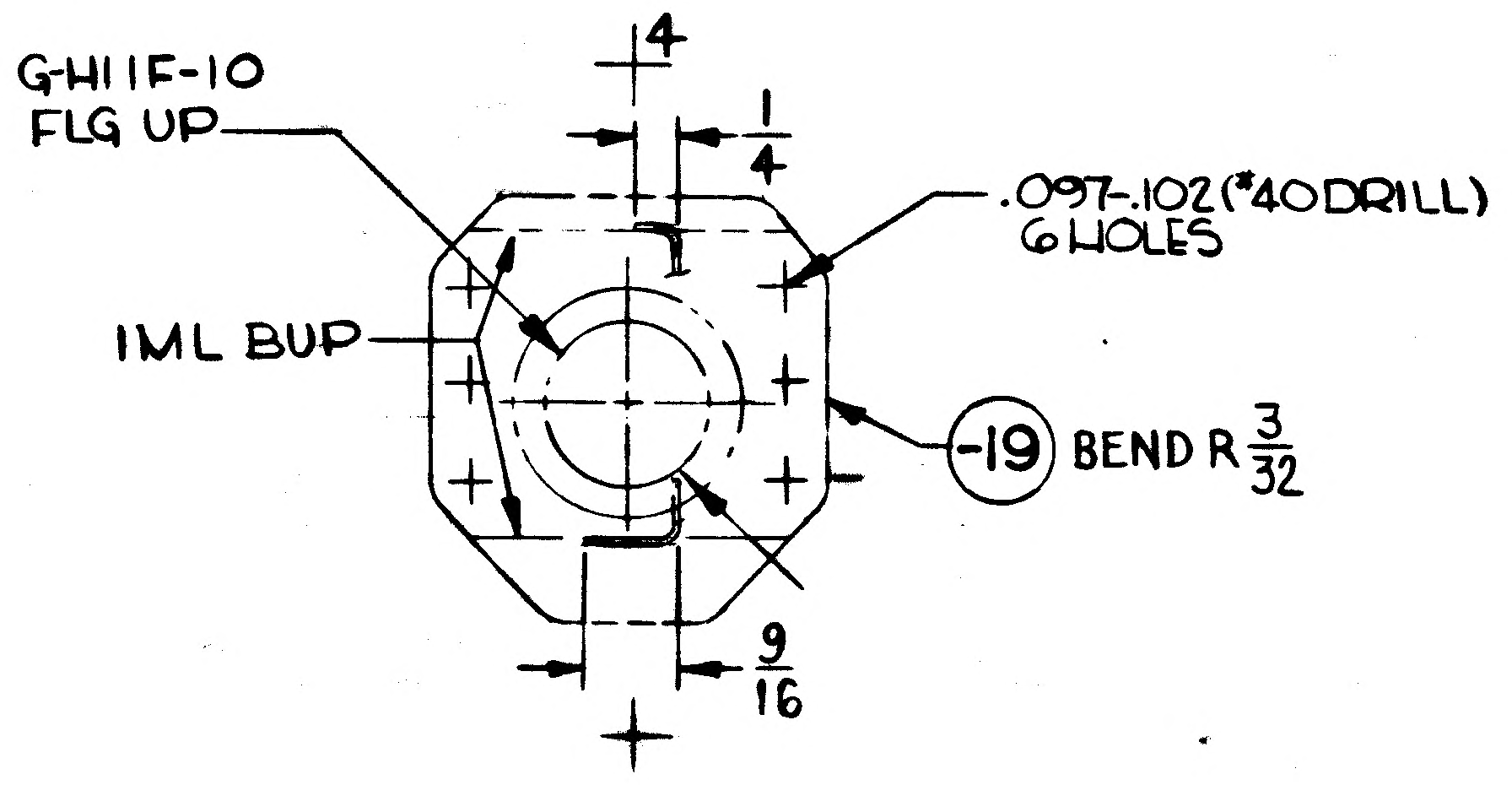
JOG .042/.032
9/16 (TYP)
IML BUP
9
-11 (SHOWN)
-12 (OPP)
BEND R 3/32



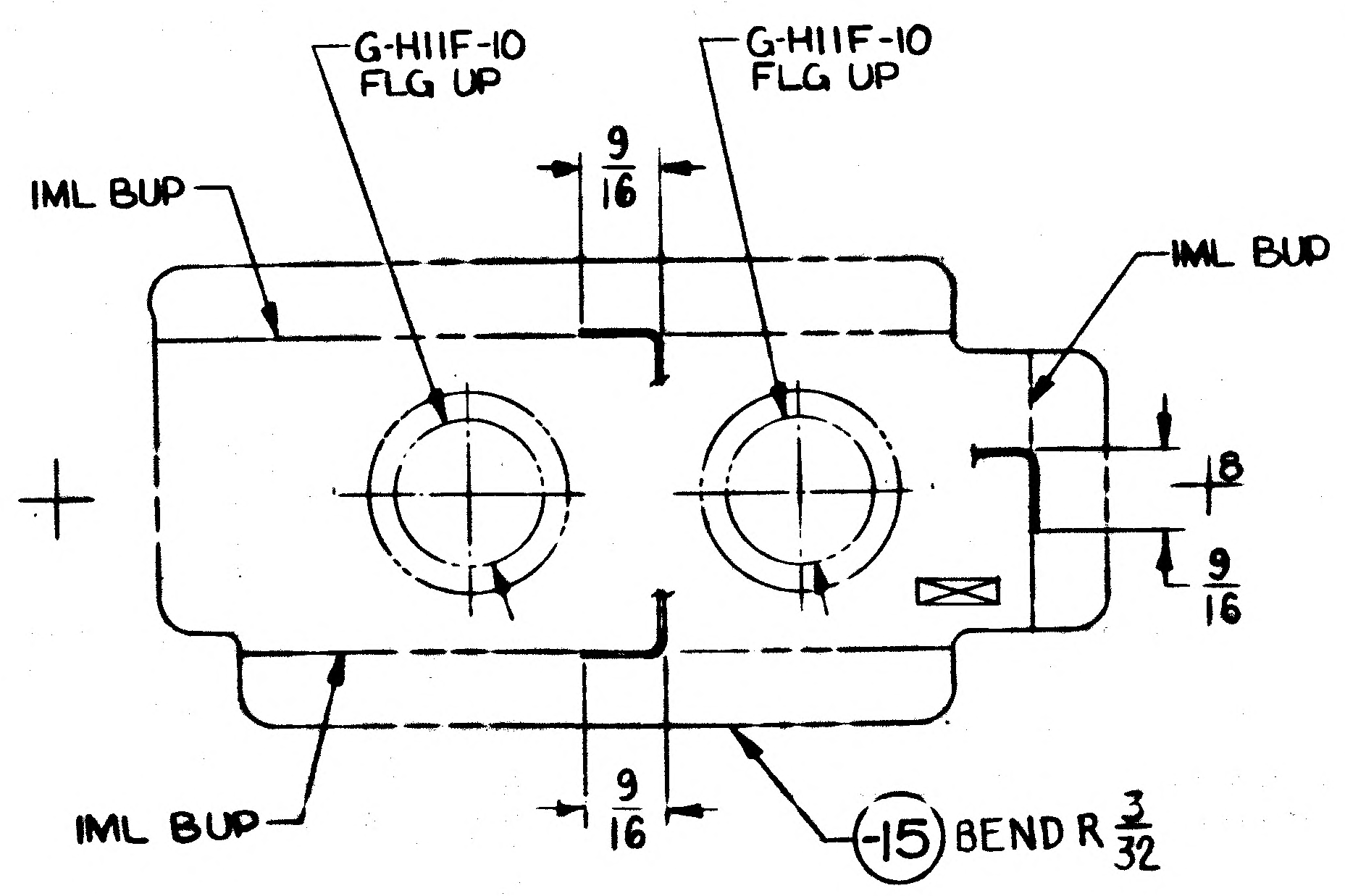
JOG .042/.032
.19
9/16
IML BUP
1.218 +0/-1/32
1 1/2
1 7/16
9/16
IML BUP
IML BDN
JOG .042/.032
-13 (SHOWN)
-14 (OPP)
BEND R 3/32



G-H11F-10 FLG UP
G-H11F-10 FLG UP
IML BUP
9/16
6
9/16
IML BUP
9/16
-17 BEND R 3/32



G-H11F-10 FLG UP
.4
1/4
.097-.102 (#40 DRILL) 6 HOLES
IML BUP
-19 BEND R 3/32
9/16



G-H11F-10 FLG UP
G-H11F-10 FLG UP
9/16
IML BUP
IML BUP
.8
9/16
IML BUP
9/16
-15 BEND R 3/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	√
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32 EXCEPT AS NOTED	√

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE E	CODE IDENT NO. 26512	LDW280-18465	
MODEL OR END ITEM LM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1826
CONTROL INFO NO. LDW280B9843

FOR ALL DASH NOS LISTED BELOW DELETE LTA-11(23) REQ'TS FOR THE NOTED NEXT ASSY'S

DRAWING NO	DASH NO *	TITLE	NEXT ASSY	CHANGE NO
✓ LDW280-18464	-11, -13, -15, -17	SEE DWG	LDW280-54602	A7
✓ LDW280-18465	-11, -12, -13, -14, -15 -17, -19	↕	↕	B1
LDW280-18466	-11, -12, -13, -14, -15, -16 -15-1, -16-1, -17, -18			B1
LDW280-18523	-11, -13, -14, -15, -17, -21			A7
LDW280M17839	-11			B2
LDW280M17841	-11			A6
LDW280M17843	-11			A7
LDW280M17844	-11, -12			A6
LDW280M17845	-11			B2
LDW280M17846	-11, -12	SEE DWG	LDW280-54602	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 103 (5)

REASON FOR EO: SEQ BAY DOOR NOT REQD ON LTA-11

DESCRIPTION OF EO: FOR * REMOVED LTA-11(23) REQMTS

GAEC EO RELEASE: (R) JK 1/28/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RSH			w/bd			RST	
DATE	1-26-70			1/26/70	1/26/70		1-27-70	1/28/70

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1826

CDR 013070
ISSUED BY P. LANDRY / G. HANSMANN x87222 SECTION VEH DES INT GROUP NO. 335 PL 25

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MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	LTA-11 (23)	1EA
↑	↑	DVT (70)	↑
		TM-5 (65)	
		LM-14(44)	
↓	↓	THRU	↓
LM	LDW280-54602	LM-4 (34)	1EA

PART NO- LDW280-18466-15-1 & -16-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM164	LMU280-31218	M3/FVV(03)	2 EA
LFM126	LDW280-66602	LTA-8(18)	2 EA
LM	LDW280-54602	DVT (70)	1 EA
LM	LDW280-54602	LTA-11(23)	1EA
↑	↑	DVT (70)	↑
		TM-5 (65)	
		LM-14(44)	
↓	↓	THRU	↓
LM	LDW280-54602	LM-4 (34)	1 EA

PART NO. LDW280-18466-15 & -16 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	LTA-11(23)	2 EA
LM	LDW280-54602	TM-5/R(65)	2 EA
LFM 164	LMU 280-31218	M3/FVV(03)	2 EA
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	2 EA
LFM 126	LDW280-66602	LTA-8(18)	2 EA
LM	LDW280-54602	LM-14 (44)	2 EA
LM	↑	LM-13 (43)	2 EA
LM		LM-12 (42)	2 EA
LM		LM-11 (41)	2 EA
LM		LM-10 (40)	2 EA
LM		LM-9 (39)	2 EA
LM		LM-8 (38)	2 EA
LM		LM-7 (37)	2 EA
LM		LM-6 (36)	2 EA
LM	↓	LM-5 (35)	2 EA
LM	LDW280-54602	LM-4 (34)	2 EA

PART NO. LDW280-18466-17,-18 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	LTA-11(23)	1 EA
LM	LDW280-54602	TM5/R(65)	1 EA
LFM 164	LMU 280-31218	M3/FVV(03)	1 EA
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	1 EA
LFM 126	LDW280-66602	LTA8(18)	1 EA
LM	LDW280-54602	LM-14(44)	1 EA
LM	↑	LM-13(43)	1 EA
LM		LM-12(42)	1 EA
LM		LM-11 (41)	1 EA
LM		LM-10(40)	1 EA
LM		LM-9(39)	1 EA
LM		LM-8 (38)	1 EA
LM		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LM	↓	LM-5(35)	1 EA
LM	LDW280-54602	LM-4 (34)	1 EA

PART NO. LDW280-18466-11,-12,-13 -14 — GAEC SCH NO. 52

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-18

GRUMMAN REL INFO A
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

G	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD1433 (CCA 586)

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN 2/6/68	RELIABILITY	
LAYOUT BY	HANSMANN 2-7-68		
CHECKED BY	2-6-68		
GR LEADER	2/12/68		
VEH DES INT	J. Puratere 2/12/68		
STRUCTURES	NM WJH 2/14/68	PROJ ENGR	J. Puratere 2/12/68
STRUCTURES	2/14/68	REL GROUP	2-15-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ SCIENTIFIC EQUIP. BAY ~ THERMAL SHIELD SPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18466	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 9-64

CDR 62-16-60

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									✓		REWORK	SCRAP			
A	1	1.00				✓		LEO280-966 LCD3075,CCA586	ON-11,-12,-13,-14,-15,-16,-17,-18 ADDED TM-5/R(65) REQMTS. ADDED SH 1.10	TM5/R(65)	NOT	REQD	J. LAMENDOLA 11-10-69		
	2	1.00		LFM126		✓		LEO280-982 LCD1021-33,CCA498	ON-11,-12,-13,-14,-15,-16,-17,-18 ADDED END ITEM LFM 126 REQMTS.	LTA8(18)					
	3	1.00		LFM164		✓		LEO280-995 LCD3049,CCA1064	ON-11,-12,-13,-14,-15,-16,-17,-18 ADDED END ITEM LFM 164 REQMTS	M3/FVV(03)					
	4	1.00 2.00 3.00		S		✓		EOA4,LCD3075 CCA1111,LCD1433 CCA586	ON-15 & -16 ELONGATED 3/8 DIA. HOLE. REVISED QTY OF -15 & -16 ADDED -15-1 & -16-1, 1 EA REQD PER MODULE WAS 2 EA REQD (-15 & -16 MAY BE REWORKED INTO -15-1 & -16-1)	LM-4 THRU LM-15, TM5/R DES VERIF. TEST	NOTED				
	5	1.00				✓		LEO280-1338 LCD3587 CCA1821	DELETED LM-15(45) EFF FROM -11,-12-13,-14,-15, -16,-17,-18,-15-1,-16-1	LM-15		✓	N.D.		
	6	1.00				✓		LEO280-1524 LCD 3890	ON-11 THRU -18,-15-1 & -16-1 ADDED LTA-11 REQMTS.	LTA-11	NOT	REQD			
	7	1.00				✓		LEO280-1573 LCD 3890	ON-11 THRU -18,-15-1 & -16-1 ADDED LTA-11 REQMTS						
	8			DEC 5-LM-1348			✓	Ⓡ	REF EO A4: IN FIELD OF EO -17 & -18 SHOULD BE -15-1 & -16-1 [illegible] 11/20/69	NOT REQD	NOT	REQD		F. Lukas 11-[illegible]	

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES
	A	[illegible] 11-21-69	Thorgusen 11-21-69		NM 11/22/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18466	A

SCALE NONE SHEET 1.10 Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18466161	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.036x3 x4	T6	88	
		-15-1						.036x3 x4			
		-18						.032 x 3 x 4			
		-17						.032 x 3 x 4			
		-16						.036 x 3 x 4			
		-15		BRACKET				.036 x 3 x4			
		-14		ANGLE				.032 x 2 x19			
		-13		ANGLE				.032 x 2 x19			
		-12		BRACKET				.032 x 4 x 7			
		LDW280-18466-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x7	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18466	A
SCALE NONE			SHEET 2.00

④

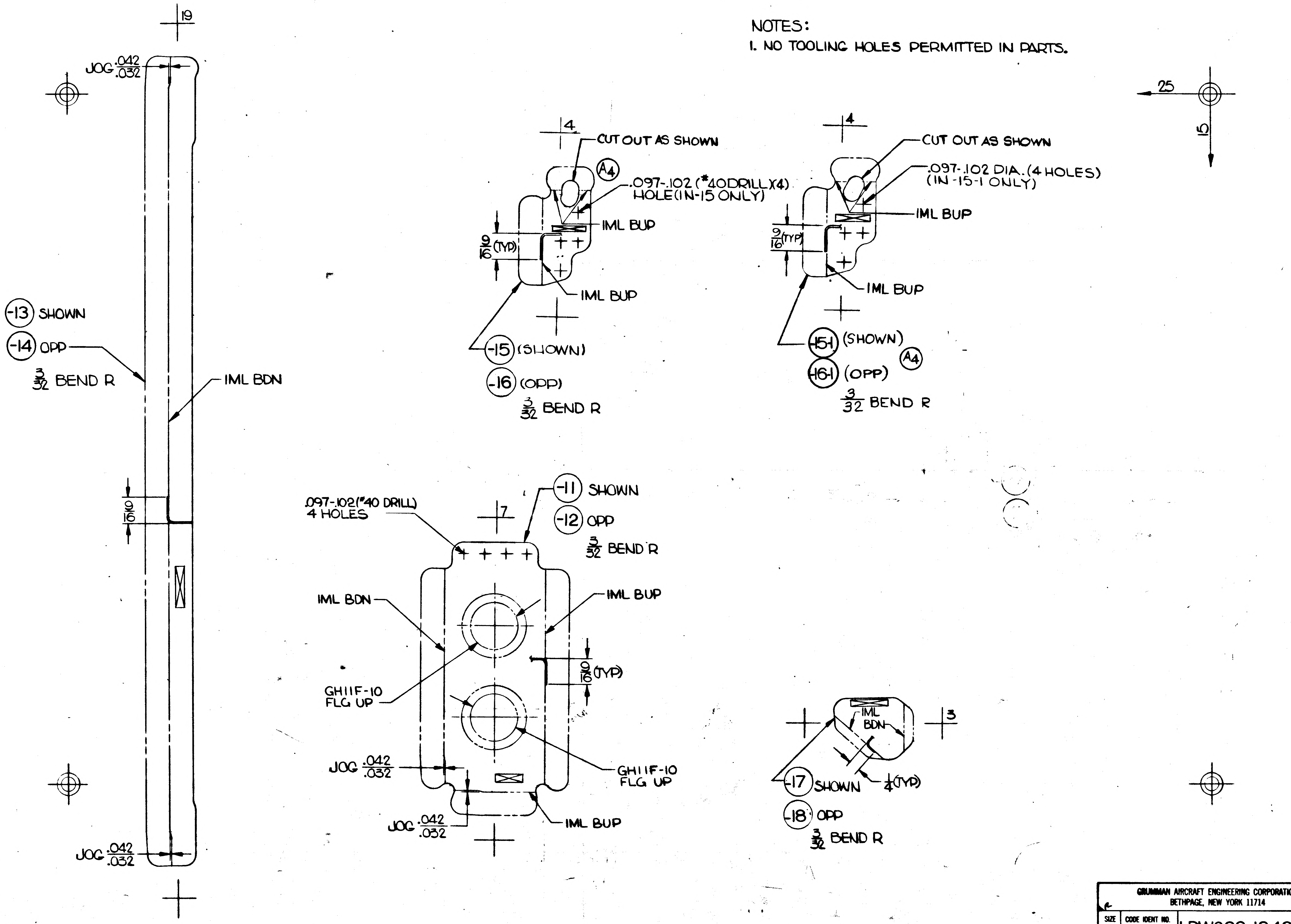
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


19
JOG .042/.032
-13 SHOWN
-14 OPP
3/32 BEND R
IML BDN
9/16
JOG .042/.032
4
CUT OUT AS SHOWN
A4
.097-.102 (#40 DRILL X4) HOLE (IN -15 ONLY)
IML BUP
9/16 (TYP)
IML BUP
-15 (SHOWN)
-16 (OPP)
3/32 BEND R
4
CUT OUT AS SHOWN
.097-.102 DIA. (4 HOLES) (IN -15-1 ONLY)
IML BUP
9/16 (TYP)
IML BUP
-15-1 (SHOWN)
A4
-16-1 (OPP)
3/32 BEND R
25
15
.097-.102 (#40 DRILL) 4 HOLES
7
-11 SHOWN
-12 OPP
3/32 BEND R
IML BDN
IML BUP
9/16 (TYP)
GH11F-10 FLG UP
GH11F-10 FLG UP
JOG .042/.032
JOG .042/.032
IML BUP
3
IML BDN
3
-17 SHOWN
1/4 (TYP)
-18 OPP
3/32 BEND R

LDW280-18466 A

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18466	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1826
CONTROL INFO NO. LDW280B9843

FOR ALL DASH NOS LISTED BELOW DELETE LTA-11(23) REQ'TS FOR THE NOTED NEXT ASSY'S

DRAWING NO	DASH NO *	TITLE	NEXT ASSY	CHANGE NO
✓ LDW280-18464	-11, -13, -15, -17	SEE DWG	LDW280-54602	A7
✓ LDW280-18465	-11, -12, -13, -14, -15 -17, -19			B1
✓ LDW280-18466	-11, -12, -13, -14, -15, -16 -15-1, -16-1, -17, -18			B1
LDW280-18523	-11, -13, -14, -15, -17, -21			A7
LDW280M17839	-11			B2
LDW280M17841	-11			A6
LDW280M17843	-11			A7
LDW280M17844	-11, -12			A6
LDW280M17845	-11			B2
LDW280M17846	-11, -12	SEE DWG	LDW280-54602	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 103 (5)

REASON FOR EO: SEQ BAY DOOR NOT REQD ON LTA-11

DESCRIPTION OF EO: FOR * REMOVED LTA-11(23) REQMTS

GAEC EO RELEASE: JK 1/28/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RSH				W/H		RST	
DATE	1-26-70			1/26/70	1/26/70		1-27-70	1/28/70

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1826

CDR 013070
ISSUED BY P. LANDRY / G. HANSMANN x 87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18467

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	1 EA
↑	↑	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
↓	↓	LM-5(35)	1 EA
LM	LDW280-54602	LM-4(34)	1 EA
PART NO. LDW280-18467-11, -13, -15, -17 & -19		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00												
REV																
SHEET																
REV																
SHEET																
REV																

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-K 2/16/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA 586)

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY V. NARONIS 2/6/68

LAYOUT BY G. HANSMANN

CHECKED BY 2-7-68

GP. LEADER 2/12/68

VEH. DES. INT. 2/13/68

STRUCTURES 2/15/68

STRUCTURES FEP 2/16/68

WEIGHTS

RELIABILITY

PROJ ENGR 2/13/68

REL GROUP 2-16-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - SCIENTIFIC EQUIP BAY
THERMAL DOOR ~ FRAME SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18467

SCALE NONE

SHEET 1.00 OF 3

7.1 12-65

CDR 2-16-68

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18467-19	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.036 x 3 x 5	NONE	88	
	-17			PLATE			7075-T6	.036 x 3 x 6	NONE	88	
	-15			ZEE			7075	.032 x 5 x 18	T6	88	
	-13			ANGLE			7075	.032 x 2 x 18	T6	88	
	LDW280-18467-11	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 14	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL ALLOY HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18467
SCALE NONE
SHEET 2.00

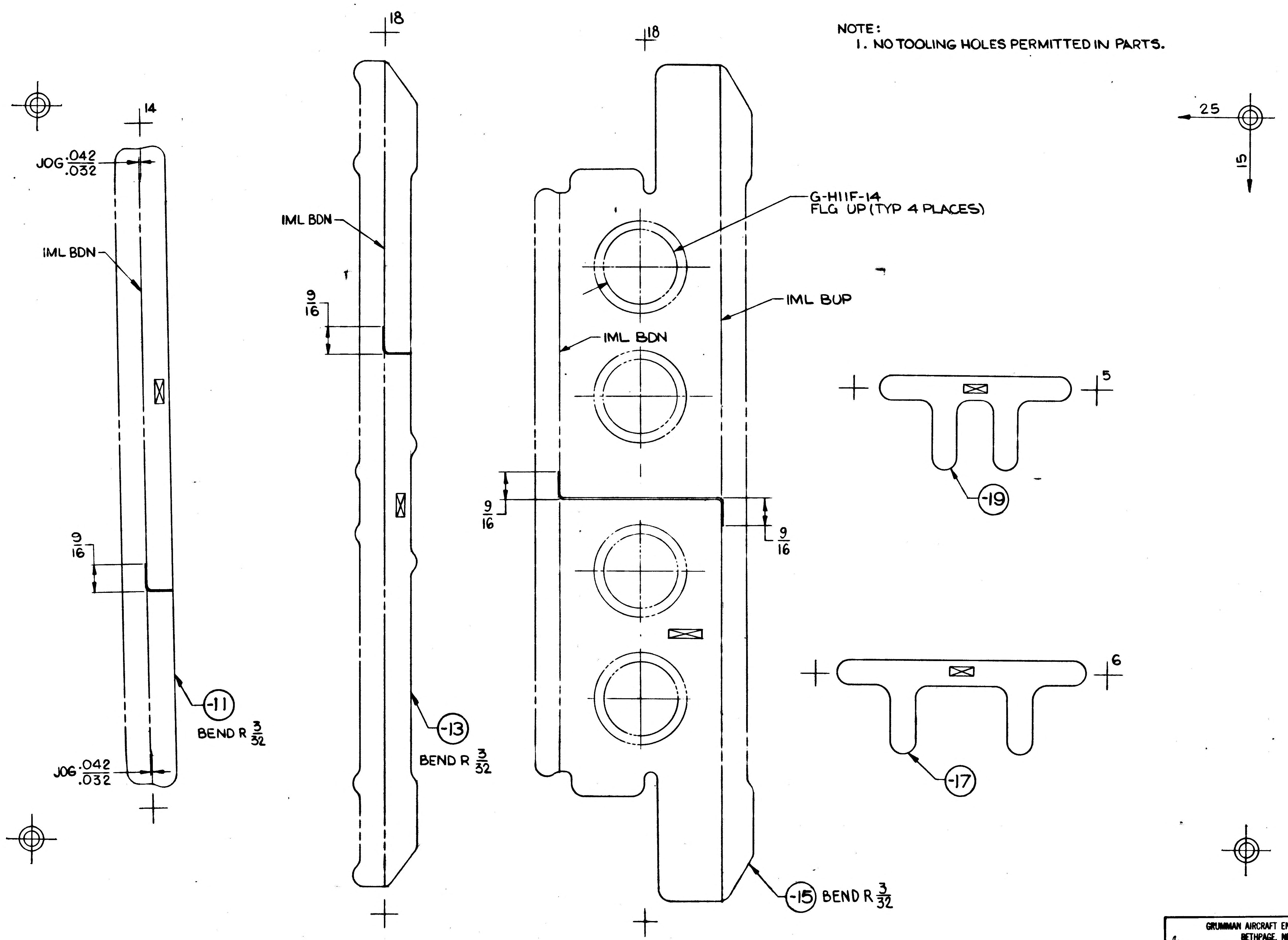
ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.


14
JOG .042/.032
IML BDN
9/16
-11
BEND R 3/32
JOG .042/.032
18
IML BDN
9/16
-13
BEND R 3/32
18
G-H11F-14
FLG UP (TYP 4 PLACES)
IML BUP
IML BDN
9/16
9/16
-15 BEND R 3/32
25
15
5
-19
6
-17

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18467
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 966
CONTROL INFO NO. LDW280 B-3249

ENG 32.2 REV 3-65

ADD TM-5/R(65)EFF TO THE FOLLOWING DWGS & DASH NOS.

DWG NO. (*)	NO REQD PER VEH	N/A	TITLE	CHG NO
/				
/				
/				
LDW280-54837-3	1	LDW280-54602	SEE Dwg	
-54837-5	1			A7 ✓
-54837-7	1			
-18464-17	1			
-18464-11	1			A1 ✓
18464-13	1			
18464-15	1			
18465-11	2			
-12	2			
-13	1			A1
-14	1			
-15	1			
-17	1			✓
18465-19	2			
18466-11	1			
-12	1			✓
-13	1			
-14	1			A1
-15	2			
-16	2			
-17	2			
18466-18	2			
18467-11	1			
-13	1			A1
-15	1			
-17	1			✓
LDW280-18467-19	1	LDW280-54602	SEE DWG	

DWG NO.	NO REQD PER VEH	N/A	TITLE	CHG NO.
/				
LDW280-18474-11	1	LDW280-54602	SEE DWG	
-12	1			
-13	1			A1
-14	1			
-15	1			
-17	1			
18474-19	1			
18523-11	1			
-13	2			
-15	2			A1
-17	2			
18523-19	1			
18523-14	2			
M17845-11	1			A2
M17839-11	4			A2
M17841-11	2			A1
M17843-11	2			A2
M17844-11	1			A1
M17844-12	1			
M17846-11	1			A1
LDW280 M17846-12	1	LDW280-54602	SEE Dwg	
/				
/				
/				
/				
/				
/				
/				

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3075CCA 586	PKG 2I	(5) GAEC 1C EO RELEASE

REASON FOR EO: TO INCLUDE ALSEP ON TM-5/R(65)

DESCRIPTION OF EO: ON (*) ADDED TM-5/R (65) REQMTS

JK 5/ /68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQD
APPROVED BY: VDI — DATE 5/13/68
SUPPORT | RELIAB. GROUP | GROUP LEADER: 5-13-68 | STRESS GROUP | LIAISON ENGRG | PROJ ENGRG: 5/13/68 | 5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO. 966

5-17-68
ISSUED BY W MAJUK X3352 SECTION VDI GROUP NO. 335 PL 25

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 982
CONTROL INFO NO. LDW280B2910

FOR ALL PART NO'S LISTED BELOW ADD LTA 8(18) EFFECTIVITY WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR N/A LDW280-54602, LM-4(34) VEHICLE:

*PART NUMBERS	N/A	CHANGE NO.
LDW280M17862 -37, -59, -39, -51 & -53	LDW280-66602	B2
LDW280M17846-11, -12	↑	A2
LDW280M17845-11,		A3
LDW280M17844-11, -12		A2
LDW280M17843-11		A3
LDW280M17841 -11		A2
LDW280M17839 -11		A4
LDW280M17804-19, -21		A3
LDW280 -18523 -11, -13 -14 -15 -17 & -19		A2
LDW280 -18474 -11, -12, -13, -14, -15, -17 & -19		A2
LDW280-18461 -11 -13 -15 -17 & -19		A2
LDW280-18466 -11, -12, -13, -14, -15, -16, -17 & -18		A2
LDW280 -18465 -11 -12 -13 -14 -15 -17 & -19	↓	A2
LDW280-18464 -11. -13 -15 & -17	LDW280-66602	A2

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33 CCA 498 PKG 6	(5)

REASON FOR EO: TO ADD LM 4(34) REQ'M'TS ON LTA-8(18) VEHICLE

DESCRIPTION OF EO: ON -(*) ADDED END ITEM LFM 12's REQMTS.

GAEC EO RELEASE: C VK 5/28/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA 8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
APPROVED BY	JaP	ms		pgt	W/N		JaP	LW
DATE	5/16/68	5/16/68		5-15-68	5/6/68		5/16/68	5-27-68

PRIORITY: C

DRAWING TITLE: SEE DWG FOR TITLE

DRAWING NO. LEO 280

EO NO. 982

5-17-68
ISSUED BY J. FIORELLO (X1681)

SECTION VDI

GROUP NO. 280 PL 25

01 NAS 9-1100

LFM

ENG 32.2 REV

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 995
CONTROL INFO NO. LDW 280 B3475	

FOR THE FOLLOWING DWG'S ADD M3/FVV (03) REQUIREMENTS FOR THE NEXT ASSY & QUANTITIES NOTED.

DWG NUMBER (*)	TITLE	NEXT ASSY.	QTY/MOD	CHG NO.
✓ LDW280-54742-1,-3 & -5	✓	LMU280-31216	1 EACH	A2
✓ LDW280P18282-1	✓	LMU280-31216	1	A9
✓ LDW280-66837-1 & -3	✓	LMU280-31218	1 EACH	A2
✓ LDW280-66793-1 & -3	✓		2 EACH	A1
✓ LDW280-18464-11,-13,-15,-17	✓		1 EACH	A3
✓ LDW280-18465 -11,-12,-19 -13,-14,-15,-16	✓		2 EACH 1 EACH	A3
✓ LDW280-18466 -11,-12,-13,-14 -15,-16,-17,-18	✓		1 EACH 2 EACH	A3
✓ LDW280-18467-11,-13,-15,-17,-19	✓		1 EACH	A3
LDW280-18474-11,-12,-13,-14,-15,-17,-19	✓		1 EACH.	A3
LDW280-18523 -11,-19 -13,-14,-15,-17			1 EACH 2 EACH	A3
LDW280 M17845-11	SEE DWG		1	A4
LDW280M17839-11			4	A5
LDW280M17841-11	✓		2	A3
LDW280M17843-11	✓		2	A4
LDW280M17844-11,-12	✓		1 EACH	A3
LDW280M17846-11,-12	✓		1 EACH.	A3
LDW280 M17804 -19 -21	✓	LMU280-31218	4 2	A4
LDW280-54767-1,-3,-5,-7	✓	LMU280-31217	1 EACH	A2
LDW280-18562-11 -13 -15,-17,-19	✓	LDW280-66674	7 2 1 EACH.	A4
LDW280-54647-1	✓	LMU280-31216	1	A1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3049 CCA 1064 PKG 3 & 4		(5)

REASON FOR EO: UPDATE M3 MOCKUP TO LH-4 QUAD II CONFIGURATION.

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 164 REQMTS.

GAEC EO RELEASE: JK 6/4/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV(03)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK NOT REQD	SCRAP

PRIORITY: C

APPROVED BY								
DATE	5/24/68			5-24-68	5/24/68		5/24/68	6-4-68
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 995

5-24-68
ISSUED BY G. HANSMANN X 3352 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW2[illegible]0B7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	↑
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468	B1	
-18469	A2	
-18470	A4	
-18471	A5	↓
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3587 PKG 55 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/15/69 2-3-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAIS ENGR	PROJ ENGRG	CONT
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	4/1/69			4-2-69	4/15/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

082869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM126	LDW280-66837	LTA-8(18)	4
LFM-164	LDW280-66837	M3/FVV(03)	4
LM	LDW280-54837	TM5/R(65)	4
↑	↑	DVT(70)	4
		LM-15(45)	4
↓	↓	THRU	
LM	LDW280-54837	LM-4(34)	4

PART NO. LDW280-18468-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-164	LDW280-66674	M3/FVV(03)	8
LFM-126	LDW280-66837	LTA-8(18)	19
LFM-118	LDW280-66674	LTA-8(18)	8
LM	LDW280-54674	DVT(70)	8
↑	↑	LM-15(45)	8
		THRU	
↓	↓	LM-4(34)	8
LM	LDW280-54674	TM5/R(65)	8
LFM164	LDW280-66837	M3/FVV(03)	19
LM	LDW280-54837	TM5/R(65)	10
↑	↑	DVT(70)	19
		LM-15(45)	19
↓	↓	THRU	
LM	LDW280-54837	LM-4(34)	19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18468-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-126	LDW280-66837	LTA-8(18)	1
LFM-164	LDW280-66837	M3/FVV(03)	1
LM	LDW280-54837	TM5/R(65)	1
↑		DVT(70)	1
		LM-15(45)	1
↓	↓	THRU	1
LM	LDW280-54837	LM-4(34)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18468-21			

LDW280-18468 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54674	TM5/R(65)	3
LFM164	LDW280-66674	M3/FVV(03)	3
LFM118	LDW280-66674	LTA-8(18)	3
LM	LDW280 54674	DVT(70)	3
↑		LM-15(45)	3
	↓	THRU	
↓	LDW280-54674	LM-4(34)	3
LM	LDW280-54837	TM5/R(65)	20
LFM164	LDW280-66837	M3/FVV(03)	20
LFM126	LDW280-66837	LTA-8(18)	20
LM	LDW280-54837	DVT(70)	20
↑	↑	LM-15(45)	20
↓	↓	THRU	
LM	LDW280-54837	LM-4(34)	20

PART NO. LDW280-18468-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 164	LMU280-31220	M3/FVV(03)	2EA
LFM 126	LDW280-66837	LTA8(18)	2EA
LM	LDW280-54837	TM5/R(65)	2EA
↑		DVT(70)	2EA
		LM-15(45)	2EA
↓	↓	THRU	
LM	LDW280-54837	LM-4(34)	2EA

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18468-11 & -13		52	

WORK PKG FUNCTION NO. 111 (5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.1C	2.00		3.00				
REV	A	A	A						
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO A

PRIM NO. 207 | VC(001) ME-3 | A 12/10/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

B ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA586
ok

CONTRACT NO. NAS9-1100
DRAWN BY J. BIANCHINO 1/19/68
LAYOUT BY G. HANSMANN 2/1/68
CHECKED BY John Bell 1/22/68
GP LEADER 2-1-68
VEH DES INT 2/1/68
STRUCTURE WJH 2/2/68
STRUCTURE
WEIGHTS
RELIABLITY
PROJ ENGR 2/1/68
REL GROUP Botte 2-2-68

LINE ITEM
DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-SCIENTIFIC EQUIP BAY
THERMAL DOOR - PLUME SHIELD SPT

SIZE B | CODE IDENT NO. 26512 | LDW280-18468 | A

SCALE NONE | SHEET 1.00 OF 4

CDR 2-2-68

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00		G		✓		EO A1 LCD1433 CCA 586	FOR -17 (13) REQ'D PER MODULE WAS (9) & FOR-17&-19 ADDED REQMTS FOR N/A LDW280-54674. ADDED SH.1.10	LM-4 THRU LM 15, DVT(70)	NOT	REQ'D	R.J. PRIZZI 12-9-68		
	2			LFM-118 LFM-126 G		✓		EO A2 LCD1021-23 CCA498, LCD1433 CCA586, LCD1021-33, CCA498	FOR-11, -13, -15, -17, -19 & -21 ADDED LTA-8 (18) REQUIREMENTS. FOR-15 N/A LDW280-54837, 4 REQ'D/MOD. WAS 1. EFF FOR LM4 - 15 & DVT(70). FOR -17 N/A LDW280-54837, 19 REQ'D/MOD. WAS 13. EFF FOR LM4-15 & DVT(70).	LM4 THRU LM -15, DVT(70) LTA-8					
	3	1.00, 2.00					✓	EO A3	IN M/B FOR-17, 15 REQ'D WAS 9 REQ'D N/A LDW280-54837. FOR-15, 4 REQ'D WAS 1 REQ'D, N/A LDW280-54837 PREVIOUSLY INC. ON EO A2. FOR-17 ADD 8 REQ'D N/A LDW280-54674 PREVIOUSLY INC. ON EO A1. FOR-19 ADD 3 REQ'D N/A LDW280-54674 PREVIOUSLY INC. ON EO A1. FOR-11 THRU -21 FIN # 76 PER LSP-14-9010 WAS FINISH NONE.	LM-4 THRU LM-15 & DVT(70)	✓				
	4	1.00				✓		LEO280-960 LCD3075 CCA586	ON -17 & -19 N/A LDW280-54674, -11, -13, -15, -17, -19 & -21 N/A LDW280-54837 ADDED TM-5/R (65) REQMTS.	TM-5/R(65)	NOT	REQ'D			
	5	1.00					✓	EO A5	REF EO A3 FOR -17: 19 REQ'D WAS 15 REQ'D PREVIOUSLY INC ON EO A2	LM-4 THRU LM15 DVT(70)	✓				
	6	1.00		LFM 164			✓	LEO280-994 LCD3049 CCA1064 Ⓐ	ON-17 & -19 N/A LDW280-66674, ON-11 & -13 N/A LMU280 31220, ON-15, -17, -19, -21 N/A LDW280-66837 ADD END ITEM LFM-164 REQ'MTS & N/A M3/FVV(03)	M3/FVV(03)	NOT	REQ'D	E.C.G		

CHG APPROVED

LTR	GROUP LDR										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18468	A Ⓐ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18468-21	E	PLATE	AL ALLOY SH	MIL-A-8920	2219T81	.050 X 2 X 3	NONE	76	
		-19						.050 x 2 x 3			
		-17						.050 x 2 x 2			
		-15						.050 x 2 x 3			
		-13						.050 x 2 x 2			
		LDW280-18468-11	E	PLATE	AL ALLOY SH	MIL-A-8920	2219T81	.050 x 2 x 4	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

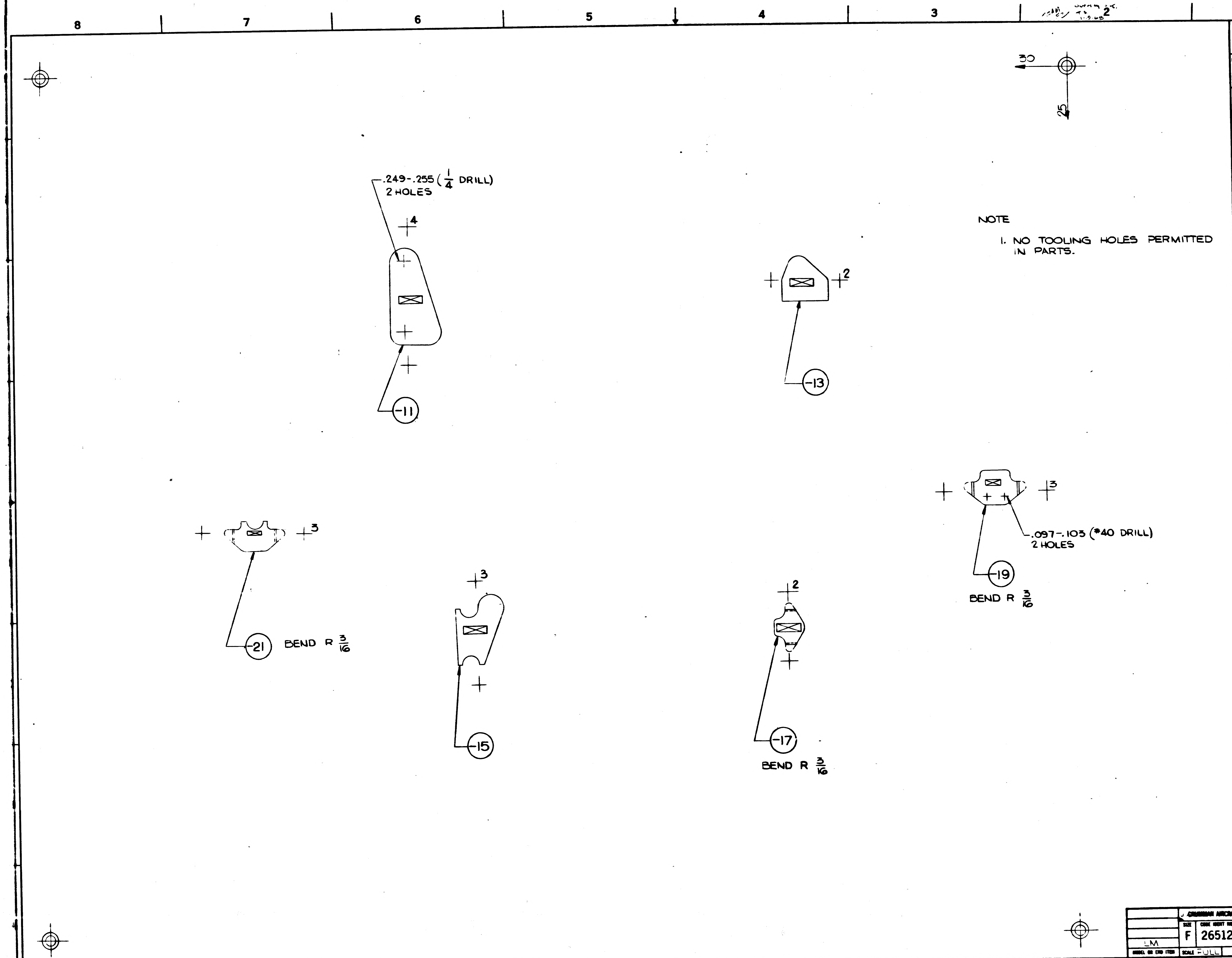
SIZE	CODE IDENT NO.		
B	26512	LDW280-18468	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .008 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	F	26512	LDW280-18468
SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW280B7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468 ✓	B1	
-18469	A2	
-18470	A4	
-18471	A5	
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 1 CCA 1321 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4-2-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY / DATE: VDI 4/1/69; SUPPORT; RELIAB. GROUP; GROUP LEADER 4-2-69; STRESS GROUP; LIAISON ENGRG; PROJ ENGRG 4/1/69; GOVT 4/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

ISSUED BY 082869 MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1551
CONTROL INFO NO. LDW 280B8117		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18465	SEE DWG	A5
—		
✓ 468		B2
469		A3
470		A5
—		
472		A5
—		
475		B6
LDW280-18477	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE ① 8-13-69
JK 8/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY					M		Bauman
				DATE	7-29-69			7/29/69	8-2-69		8/14/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDL	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1551

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280

EO NO. 1825

CONTROL INFO NO. LDW280B9844

FOR ALL DASH NOS LISTED BELOW DELETE LTA-11(23) REQ'TS FOR THE NOTED NEXT ASS'YS

DRAWING NO	DASH NO *	TITLE	NEXT ASSY	CHANGE NO
✓ LDW280M17990	-11	SEE DWG	LDW280-58648	B5
✓ LDW280M17801	-11		LDW280-54793	A7
✓ LDW280M17802	-11		↕	A7
✓ LDW280M17803	-11			A7
✓ LDW280M17838	-11		LDW280-54793	A5
✓ LDW280M17804	-19, -21		LDW280-54602	A9
✓ LDW280-18468	-11, -13, -15, -17, -19, -21		LDW280-54837	B3
LDW280-54602	-1-1		LDW280-58648	B9

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 103+104	(5)

REASON FOR EO: S.E.Q. BAY DOOR NOT REQD ON LTA-11

DESCRIPTION OF EO: FOR * REMOVED LTA-11(23) REQMTS

GAEC EO RELEASE: (R) VK 1/28/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO

DISPOSITION OF PARTS: REWORK · SCRAP ✓

APPROVED BY	RSF				W/GL		RSF	
DATE	1-26-70			1/26/70	1/26/70		1-27-70	1/27/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SEE DWGS

DRAWING NO. LEO280

EO NO. 1825

CDR 013070

ISSUED BY P. LANDRY / G. HANSMANN x87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1829
CONTROL INFO NO. LDW280 B9862

FOR ALL DRAWINGS LISTED WITH DASH NO.S * AND NEXT ASSEMBLY**
DELETE LTA-11 (23) EFFECTIVITY.

DWG. NO. *	CHANGE NO.	DWG. NOMENCLATURE	N/A **
✓ LDW 280-18468-17,-19	B4	SEE DWG.	LDW280-54674
LDW 280-18562-11,-13,-15,-17,-19	A7	SEE DWG.	LDW280-54674

*APPLICABLE DASH NO.S **APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 99 (5)

REASON FOR EO: PARTS NOT REQUIRED FOR DROP TEST LTA-11(23)

DESCRIPTION OF EO: DELETED LTA-11 (23) EFFECTIVITY FOR DWG. & DASH NO.S * FOR N/A **

GAEC EO RELEASE: JK 2/5/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	2-2-70			2/2/70	2/3/70		2-3-70	2/5/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 1829

CDR 2-6-70
ISSUED BY A. GROSS / R. CLARK SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18469

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	2 EA
		LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
		LM-5(35)	2 EA
LM	LDW280-54679	LM-4(34)	2 EA
PART NO. LDW280-18469-13, -15, -17, & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-54679	LM-4(34)	1
PART NO. LDW280-18469-11		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL-INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 CCA 533

CONTRACT NO NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY F HIPPLER 12-3-67

LAYOUT BY G. HANSMANN 12-12-67

CHECKED BY 12-21-67

GR LEADER 12/21/67

VEH DES INT 12/21/67

STRUCTURES NM 12/28/67

STRUCTURES 12/29

WEIGHTS

RELIABILITY

PROJ ENGR 12/21/67

REL GROUP 1-2-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
UPPER DECK-CABLE BRACKET SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18469

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-66

CDR 12-29-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18469-19	E		ZEE	AL ALLOY SH	QQ-A-250/12	7075	.036 x 4 x 9	T6	88	
	-17			ANGLE			7075	.032 x 2 x 5	T6	88	
	-15			CHANNEL			7075	.032 x 4 x 6	T6	88	
	-13			CHANNEL			7075	.032 x 4 x 14	T6	88	
	LDW280-18469-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 27	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18469

SCALE NONE SHEET 2.00

ENG 77.2 5-64

0 1

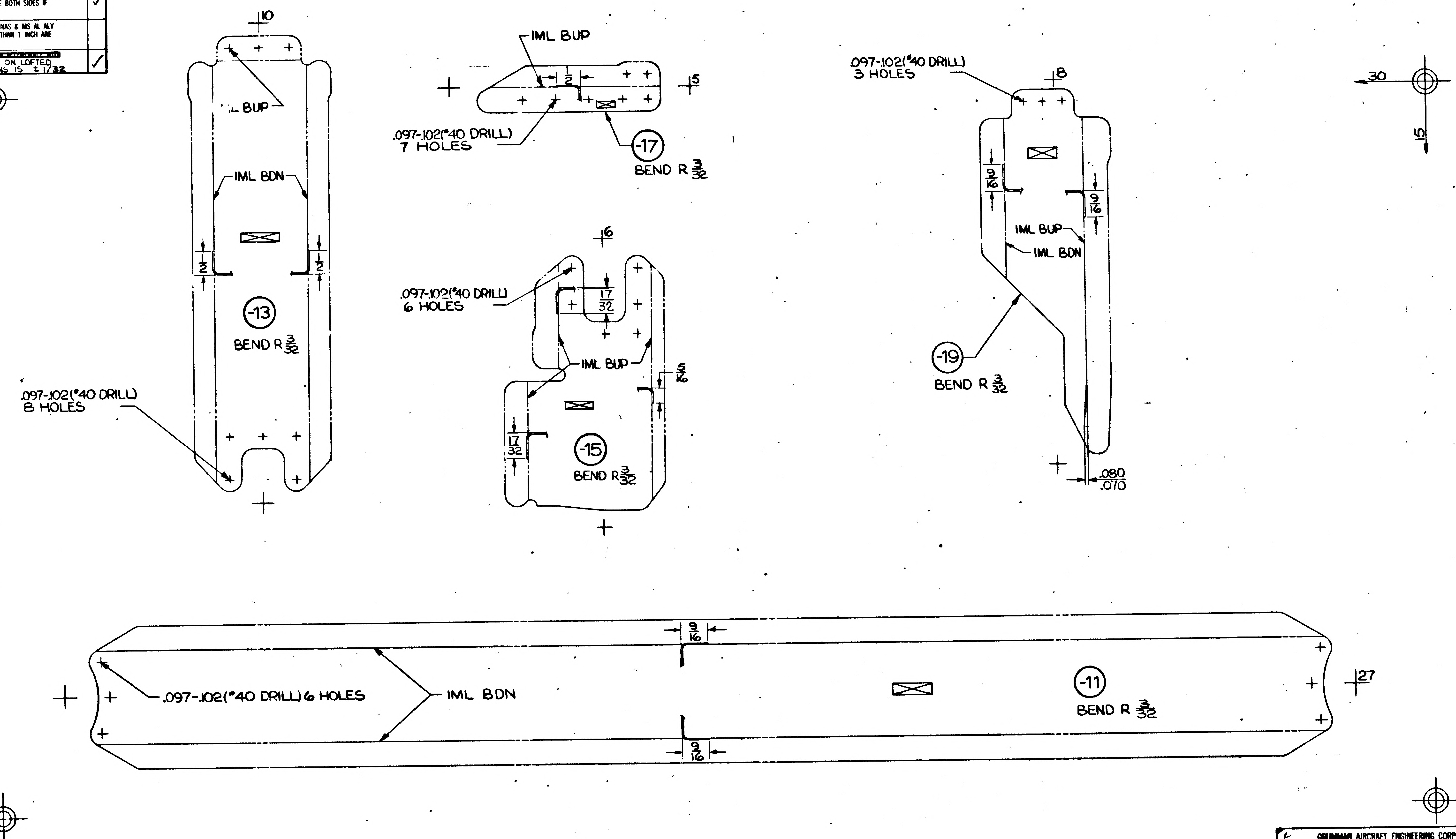
NAS 9-1100

LDW280-18469

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
[redacted] TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS



10
IML BUP
IML BDN
1/2
-13
BEND R 3/32
.097-.102(#40 DRILL)
8 HOLES
IML BUP
15
.097-.102(#40 DRILL)
7 HOLES
3/16
-17
BEND R 3/32
16
.097-.102(#40 DRILL)
6 HOLES
17/32
IML BUP
5/16
-15
BEND R 3/32
.097-.102(#40 DRILL)
3 HOLES
8
9/16
IML BUP
IML BDN
-19
BEND R 3/32
.080
.070
30
15
9/16
.097-.102(#40 DRILL) 6 HOLES
IML BDN
-11
BEND R 3/32
27

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18469	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

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01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 950
CONTROL INFO NO. LDW280B3380

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19	SEE DWG	4	A2
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-17		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: C JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)
APPROVED BY: JHS
DATE: 5/13/68
VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER: 5-13-68
STRESS GROUP: 5/13/68
LIAISON ENGRG: 5/13/68
PROJ ENGRG: 5-17-68
PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW280B7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	↑
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468 ✓	B1	
-18469 ✓	A2	
-18470	A4	
-18471	A5	↓
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 1 CC 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM — *

GAEC EO RELEASE: 4/5/69 2-3-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT.
APPROVED BY				PGH	WJH			
DATE	4/18/69			4-2-69	4/5/69		4/9/69	4/15/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

082869 ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

015

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280 | EO NO. 1551
CONTROL INFO NO. LDW 280 B 8117

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18465	SEE DWG	A5
✓ 468		B2
✓ 469		A3
470		A5
472		A5
475		B6
LDW 280-18477	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: Sub 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP									
				APPROVED BY	PJH				M		Bauman	
				DATE	7-29-69			7/29/69	8-2-69		8/14/69	8/14/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1551

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01S

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1650
CONTROL INFO NO. LDW280B 8443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/ LDW 280 - 18374	SEE DRAWING	LDW280-54679	A6
/ -18375		-54679	A6
/ -18513		-54679	A8
/ -18489		-54679	A5
/ -18460		-54679	A6
/ -18461		-54679	B2
/ -18469		-54679	A4
-18470		-54679	A6
-18506		-54679	A5
M17884		-54679	B2
-18560		-54679	A5
LDW 280 - 18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NO REWORK

APPROVED BY	PSA				W/A			
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/28/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

GAEC EO RELEASE: Sab 8-26; JK 8/29/9

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1650

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0 280 | EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

	DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280-				SEE DWG.
✓	-18374-19(4) **	B1	*LDW280-54679	
✓	-18375-12,-17(4),-19 **	A8		
✓	-18489-11,-13,-15(2),-17,-18,-19 **	A6		
✓	-18460-17,-19,-21,-23,-25 **	A8		
✓	-18461-13(2),-15(2),-19,-21,-22 **	B4		
✓	-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
	-18470-11,-13,-15,-19,-21 **	A7		
	M17884 -13-1(2) **	B3		
	LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW 280-54679

GAEC EO RELEASE (R)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO. LE0280

EO NO. 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18470

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1EA
			1EA
		LM-15 (45)	1EA
		LM-14 (44)	1EA
		LM-13 (43)	1EA
		LM-12 (42)	1EA
		LM-11 (41)	1EA
		LM-10 (40)	1EA
		LM-9 (39)	1EA
		LM-8 (38)	1EA
		LM-7 (37)	1EA
		LM-6 (36)	1EA
		LM-5 (35)	1EA
LM	LDW280-54679	LM-4 (34)	1EA
PART NO. LDW280-18470 -11, -13 -15, -17, -19		GAEC SCH NO. 55	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
LAST DASH NO. USED	-19	PRIM NO.			
		207			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1433 (CCA 586)

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	F HIPPLER 12-20-67	RELIABILITY	
LAYOUT BY	G HANSMANN 12-20		
CHECKED BY	D. FASS 12-21-67		
GR LEADER	Thomsen 12/21/67		
VEH DES INT	J. Fratrick 12/21/67		
STRUCTURES	WB NM 12/28/67	PROJ ENGR	Pesatori 12/28
STRUCTURES	EK 12/29	REL GROUP	J Tagliavia 12/29
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC EQUIP BAY
UPPER DECK -PULLEY BRACKET SUPPORT

SIZE	CODE IDENT NO	
B	26512	LDW280-18470
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-29-67

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18470-19	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 4	T6	88	
	-17			CLIP			7075	.032 x 4 x 5	T6	88	
	-15			CLIP			7075	.032 x 2 x 3	T6	88	
	-13			ANGLE			7075	.032 x 4 x 5	T6	88	
	LDW280-18470-11	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 5	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18470

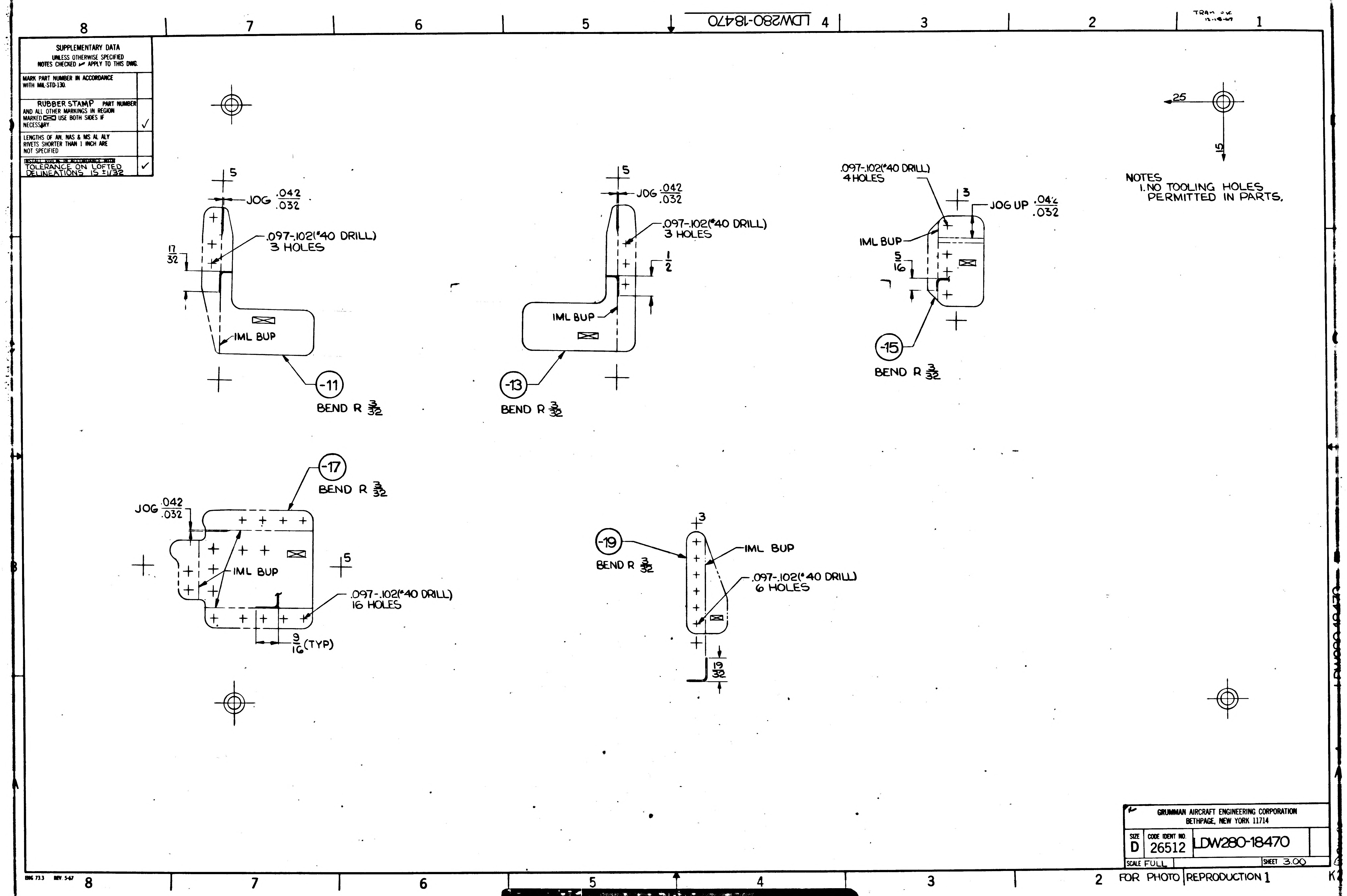
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


LDW280-18470
8
7
6
5
4
3
2
1
5
JOG .042/.032
.097-.102(#40 DRILL) 3 HOLES
17/32
IML BUP
-11
BEND R 3/32
5
JOG .042/.032
.097-.102(#40 DRILL) 3 HOLES
1/2
IML BUP
-13
BEND R 3/32
.097-.102(#40 DRILL) 4 HOLES
3
JOG UP .042/.032
IML BUP
5/16
-15
BEND R 3/32
25
15
-17
BEND R 3/32
JOG .042/.032
IML BUP
5
.097-.102(#40 DRILL) 16 HOLES
9/16(TYP)
3
-19
BEND R 3/32
IML BUP
.097-.102(#40 DRILL) 6 HOLES
19/32
ENG 73.3 REV 5-67
K

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
~~INSTALL RIVETS IN ACCORDANCE WITH~~ TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18470	
SCALE FULL		SHEET 3.00	

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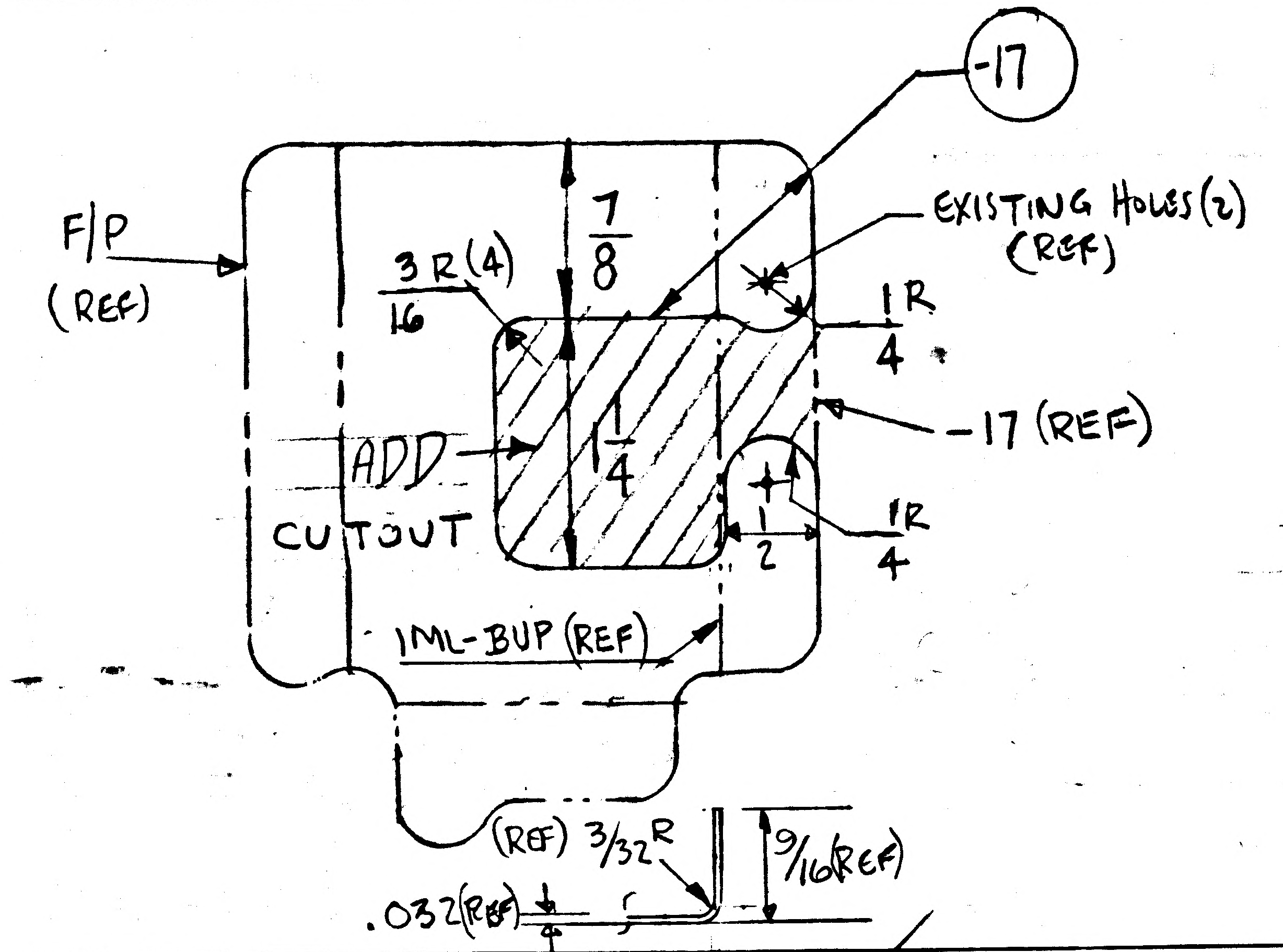
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18470
EO NO. A1
CONTROL INFO NO. LDW280 B2495


-17
F/P (REF)
3/16 R (4)
7/8
EXISTING HOLES (2) (REF)
1/4 R
1/4
-17 (REF)
ADD CUTOUT
1/2
1/4 R
IML-BUP (REF)
(REF) 3/32 R
9/16 (REF)
.032 (REF)

REWORK -17 AS SHOWN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13 (5)

REASON FOR EO: ADD PROVISIONS FOR SEQ BAY DOOR CABLE RUNS

DESCRIPTION OF EO: ON -17, ADDED CUTOUT

GAEC EO RELEASE: JK 3/14/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT (70)		
LM	LM-4 (34)	THRU LM-	15 (45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					WB			
DATE	3/11/68			3/11/68	3/11/68			3/13/68
G								~~CONF~~

PRIORITY: C
DRAWING TITLE: ANGLE D/S SEQ BAY UPPER DOOR - PULLEY BRACKET SUPPORT
DRAWING NO. LDW280-18470
EO NO. A1

3-8-68
ISSUED BY J. LANG / P. THORJUSEN X1153
SECTION VD1
GROUP NO. 335
PL 25

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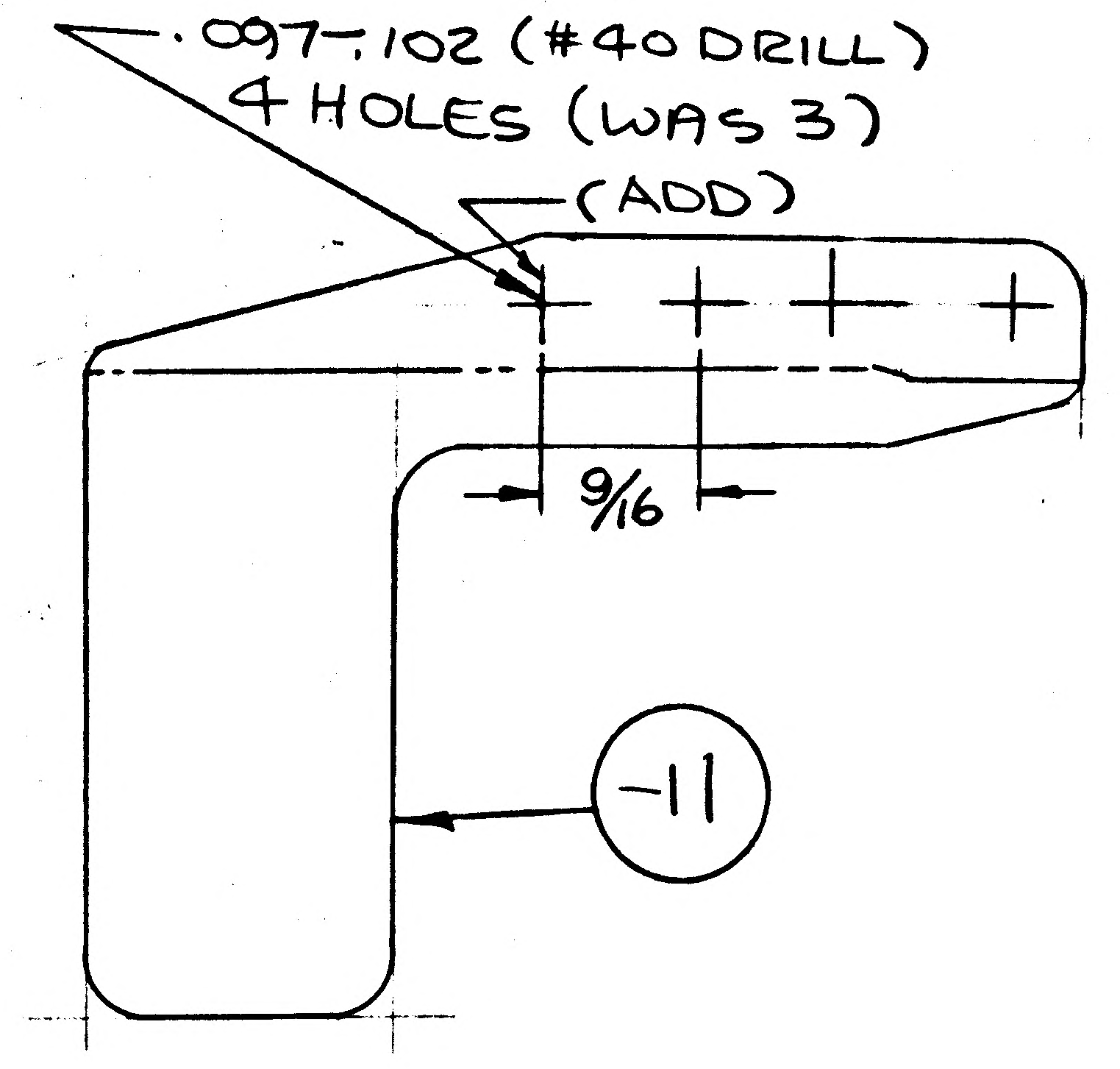
ENG 32.2 REV 3-65

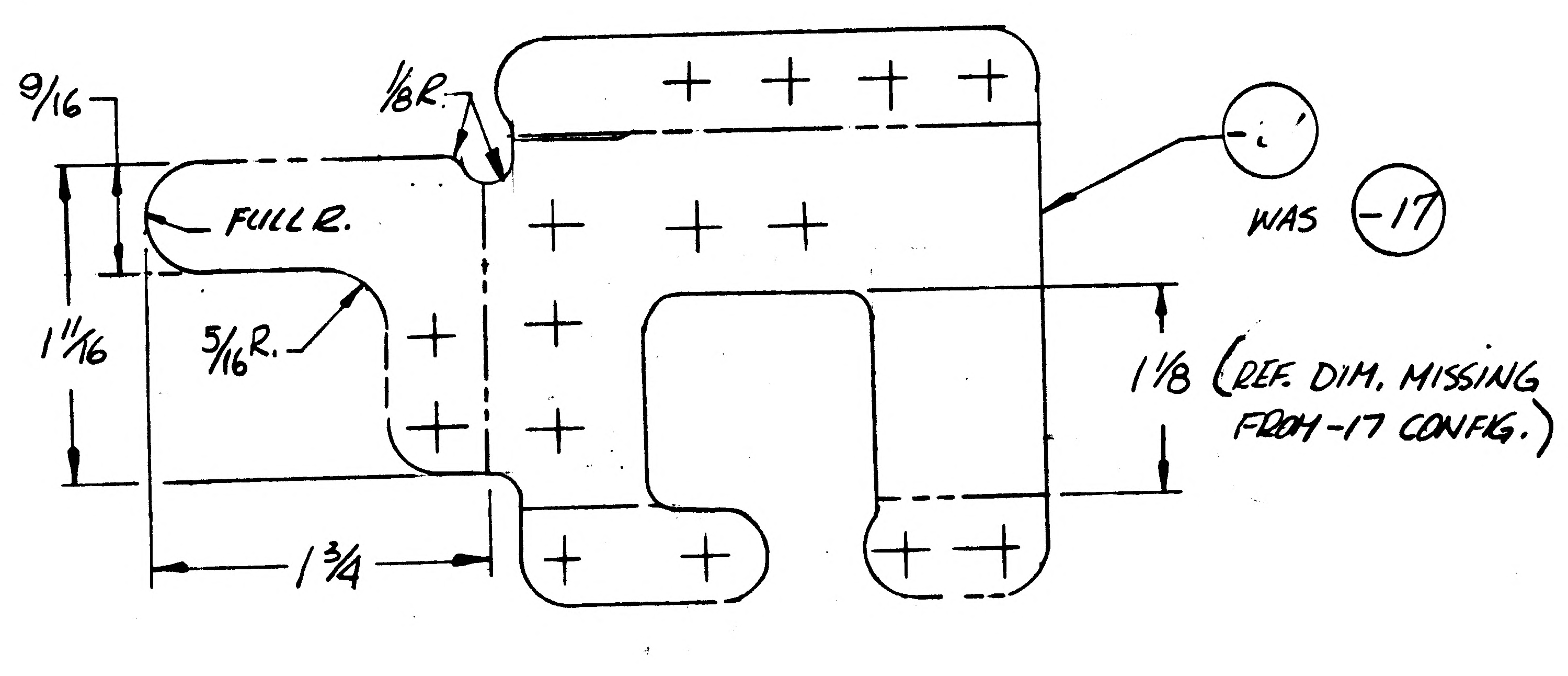
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18470 | EO NO. A2
CONTROL INFO NO. LDW280B 3386

IN F/D:
ON -11 ADD PILOT HOLE AS SHN



IN F/D & B/M: ADD -21, (SAME AS -17 EXCEPT AS NOTED), REPLACING -17.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO ADD PILOT HOLE & CHANGE FLANGE CONFIG. TO PICK UP EXISTING RIVETS.	ON -11 ADDED PILOT HOLE, -21 REPLACED -17.	VK 5/10/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		DUT(70)	
		LM-4(34) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP								
✓		-11	-17	APPROVED BY							
				DATE	5/9/68				5/10/68	5/10/68	5-10-68
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
	ANGLE ~ DS ~ SEQ BAY UPR DOOR ~ PULLEY BRKT SUPT	LDW280-18470	A2

5-17-68
ISSUED BY G. BELEV/J. TAVARES/G. HANSMANN (x681) SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 950
CONTROL INFO NO. LDW280B 3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19	SEE DWG	4	A2
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC C EO RELEASE: 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP
APPROVED BY — DATE 5/13/68 VD1 — SUPPORT — RELIAB. GROUP — GROUP LEADER 5-13-68 — STRESS GROUP 5/1 /68 — LIAISON ENGRG 5/13/68 — PROJ ENGRG 5-17-68
PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW280B 7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468 ✓	B1	
-18469 ✓	A2	
-18470 ✓	A4	
-18471	A5	
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM
— *

GAEC EO RELEASE: 2-2-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/1/69			4-2-69			4/9/69	4/15/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1338

082869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION YEH DES INT GROUP NO 335 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1551
CONTROL INFO NO. L: W 280 B 8117

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18465	SEE DWG	A5
✓ 468		B2
✓ 469		A3
✓ 470		A5
472		A5
475		B6
LDW 280-18477	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: Sub 8-13-69; JK 8/15/9; Bauman 8/14/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY							
DATE	7-29-69			7/29/69	8-2-69		8/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1551

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1650
CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 - 18374	SEE DRAWING	LDW280-54679	A6
/	-18375		-54679	A6
/	-18513		-54679	A8
/	-18489		-54679	A5
/	-18460		-54679	A6
/	-18461		-54679	B2
/	-18469		-54679	A4
/	-18470		-54679	A6
	-18506		-54679	A5
	M17884		-54679	B2
	-18560		-54679	A5
	LDW 280 - 18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-69; JK 8/29/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQ'D SCRAP

APPROVED BY	DSA			W/A			
DATE	8-8-69		8/11/69	8/12/69		8/12/69	8/21/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1650

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

	DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
	LDW280-			SEE DWG.
✓	-18374-19(4) **	B1	*LDW280-54679	
✓	-18375-12,-17(4),-19 **	A8		
✓	-18489-11,-13,-15(2),-17,-18,-19 **	A6		
✓	-18460-17,-19,-21,-23,-25 **	A8		
✓	-18461-13(2),-15(2),-19,-21,-22 **	B4		
✓	-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
✓	-18470-11,-13,-15,-19,-21 **	A7		
	M17884 -13-1(2) **	B3		
	LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW 280-54679

GAEC EO RELEASE ②

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
	3-20-70	VDI			3/20/70	NM 3/23/70		3/24/70	3/24/70

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO280

EO NO.: 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN

SECTION VEH. DES. INT.

GROUP NO. 335

PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18471
EO NO. A1
CONTROL INFO NO. LM 29-1220

ON-11 REVISE DIMENSION; .168 MAX (TYP) WAS .168±020 (TYP)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ (29)

REASON FOR EO: TO ALLOW FOR TOLERANCE BUILDUP.

DESCRIPTION OF EO: ON-11 REVISED DIM; .168 MAX (TYP) WAS .168±.020 (TYP)

GAEC EO RELEASE: JC (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REV'SE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	JAS			—	MRS	W.J.	JAP	LM
DATE	3/29/68			—	3/23/68	3/22/68	3/29/68	3/25/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SPRING TORSION-DESCENT STAGE-SCIENTIFIC EQUIP. BAY ASTRONAUT DOOR
DRAWING NO.: LDW280-18471
EO NO.: A1

ISSUED BY LIAISON C. J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 942

CONTROL INFO NO. LDW280 B 3368

FOR THE FOLLOWING PARTS ADD TM-/R(65)REQMTS., N/A LDW280-54794 FOR QUANTITIES NOTED.

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280-18471-11	SEE DWG.	1	A2 ✓
-18505-11		1	A3
-54638-1		1	A2
-54639-5		1	A2
-66502-1		1	A2
-66503-1		2	A1
M71509-11		2	A1
M17794-11		1	A1
M17795-11		1	A1
M17796-11		1	A1
LDW280 M17799-11	SEE DWG.	1	A1

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280 M17805-11	SEE DWG.	1	A1
M17834-13		2	A3
M17839-11		1	A1
M17891-11		1	A1
M17892-11		1	A1
M17893-11		1	A2
M17946-11		1	A2
M17947-11		1	A1
M17948-11		1	A1
M17949-11		1	A2
M17950-11		1	A1
M17951-11		1	A1
LDW280 M17965-11	SEE DWG.	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2D (5)

REASON FOR EO: ADD' TM-5/R(65)REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65)REQMTS

GAEC C EO RELEASE: 5/16/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK | SCRAP)

APPROVED BY	Jms							
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-16-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 942

5-17-68

ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18471 | EO NO. A3
CONTROL INFO NO. LM-2-4750

DELETE -11 SPRING FROM F/O & B/M.

IN FIELD OF DRAWING ADD -13 SPRING IDENT. TO -11 EXCEPT AS INDICATED.

DEFLECTION RATE: 210 IN-LB/360° SHOULD BE 125 IN-LB/360°

MAX. LOAD IN RANGE: 12.8 IN-LB SHOULD BE 7.65 IN-LB.

LOAD: 12.8 IN-LB @ 22° DEFL SHOULD BE 7.65 IN-LB @ 22°

NO. OF ACTIVE COILS: 2.72 SHOULD BE 1.86 ACTIVE COILS PER SIDE (3.72 TOTAL)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 1433 CCA 586 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCORRECT MANUFACTURING INFORMATION	IN F/O & B/M: ADDED -13, DELETED -11.	JK 29 16

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4(34) THRU	LM-15(45)	
LM	DVT(70),	TM5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP -11

	APPROVED BY							
DATE	5-28-68 VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP 5/28/68	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~ 5-31-68

PRIORITY C
DRAWING TITLE: SPRING, TORSION - D/S SCIENTIFIC EQUIP BAY - ASTRO. DOOR
DRAWING NO. LDW280-18471
EO NO. A3

ISSUED BY LIAISON G. MARTELL x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18471 | EO NO. A4
CONTROL INFO NO. LDW280B5003

ON-13 CHANGE FIN BOX TO READ PER LSP-14-10300 TYPE II. SEE NOTE ✱.

INF/D ADD NOTE ✱ (USE NEXT AVAIL NOTE NUMBER) THE FOLLOWING INCLUDING GENERAL REQMTS OF LSP-14-10300 SHALL BE FOLLOWED IN THE APPLICATION OF TYPE II HEAT CURED DRY FILM LUBRICANT TO QQ-W-470 MUSIC WIRE (CARBON WIRE)

(1). PREPARATION OF SURFACE

(A) VAPOR DEGREASE PER LSP-14-7010 OR SOLVENT CLEAN PER LSP-14-7011.

(B) APPLY PHOSPHATE PER LSP-14-9022 EXCEPT THAT SAND BLAST OR GRIT BLAST OF ANY TYPE OR DEGREE IS NOT PERMISSIBLE.

(2). APPLY TYPE II LUBRICANT PER LSP-14-10300

(3). CURE BY BAKING AT 360°F ± 10°F FOR 2 HOURS ± 10 MIN

✡ NOTE: IT IS PERMISSIBLE TO REWORK TYPE I FIN PARTS BY MECHANICAL CLEANING PER LSP-14-7012 UNTIL CLEAN USING VAPOR HONE OR LIQUID HONE TECHNIQUES; THIS CLEANING SHALL BE CONSIDERED AS PRECLEANING FOR PHOSPHATE COAT PER LSP-14-9022. REINSPECTION OF REWORKED PARTS REQD.

✡ REWORK INFO ONLY; DO NOT INCORPORATE. TO BE USED BY SHOP

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 1433 CCA 586 PK14 | LCD 3075 CCA 586 PK2C | (5)

REASON FOR EO: TO ADD NOTES NECESSARY FOR APPLICATION OF LSP-14-10300 LUBRICANT ON QQ-W-470

DESCRIPTION OF EO: ON-13 FIN PER LSP-14-10300 TYPE II (WAS) TYPE I. ADDED SEE NOTE ✱ TO FIN BOX.

GAEC EO RELEASE: Ⓡ C JK 8/19/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4(34) THRU	LM-15(45)
		DVT(70)	TM-5R(65)
LM			

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✡ ✓	

				GROUP LEADER	STRESS GROUP	MATL ENGRG	PROJ ENGRG	CONT
APPROVED BY				RBT	WH	CAH		
DATE	8/16/68			8/16/68	8/16/68	8.16.68	8/16/68	8-16-68
S	VDI	SUPPORT	RELIAB GROUP					

PRIORITY: C

DRAWING TITLE: SPRING TORSION ~ D/S - SCIENTIFIC EQUIP BAY ~ ASTRONAUT DOOR

DRAWING NO. LDW280-18471 | EO NO. A4

8-19-68
ISSUED BY G. BELEV / THORJUSEN SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1338
CONTROL INFO NO. LDW280B7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18461 ✓	B1	SEE DWG
-18464 ✓	A5	
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468 ✓	B1	
-18469 ✓	A2	
-18470 ✓	A4	
-18471 ✓	A5	
LDW280 -18472	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 1 CCA 1E-1 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/15/69 2-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/18/69			4-2-69	4/16/69		4/9/69	4/15/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1338

ISSUED BY 052869 MEVORAH/THORJUSEN X8604 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18472

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54596	DESIGN VERIFICATION TEST (70)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-54596	LM-4(34)	2
PART NO. LDW280-18472-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54596	DESIGN VERIFICATION TEST (70)	5
LM	LDW280-54596	LM-15(45)	5
		LM-14 (44)	5
		LM-13 (43)	5
		LM-12 (42)	5
		LM-11 (41)	5
		LM-10 (40)	5
		LM-9 (39)	5
		LM-8 (38)	5
		LM-7 (37)	5
		LM-6 (36)	5
		LM-5 (35)	5
LM	LDW280-54596	LM-4 (34)	5
PART NO. LDW280-18472-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54596	DESIGN VERIFICATION TEST (70)	8 EA
LM	LDW280-54596	LM-15(45)	8 EA
		LM-14(44)	8 EA
		LM-13(43)	8 EA
		LM-12(42)	8 EA
		LM-11 (41)	8 EA
		LM-10 (40)	8 EA
		LM-9 (39)	8 EA
		LM-8 (38)	8 EA
		LM-7 (37)	8 EA
		LM-6 (36)	8 EA
		LM-5 (35)	8 EA
LM	LDW280-54596	LM-4 (34)	8 EA
PART NO. LDW280-18472-11 & -13		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO			
		PRIM NO.	JK(601)		
LAST DASH NO. USED	-17	207	4P-16	2/13/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°

G	ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT		
CLASS II ENGRG CHANGE		
CLASS I ENGRG CHANGE	V	
CCD 1433, CCA 586		

CONTRACT NO NAS 91100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 1-27-68	RELIABILITY	
LAYOUT BY	GDS HANSMANN 1-27-68		
CHECKED	WCG 2/12/68		
GR LEADER	Thorne 2/15/68		
NEH DES INT	2/15/68		
STRUCTURES	2/17/68	PROJ ENGR	2/16
STRUCTURES	2/19/68	REL GROUP	2-19-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I. NEW YORK

INTERCOSTAL
DESCENT STAGE - SCIENTIFIC EQUIPMENT BAY - ASTRONAUT PROTECTIVE DOOR

SIZE B | CODE IDENT NO. 26512 | LDW280-18472

SCALE NONE | SHEET 1.00 OF 3

CDR 2-23-68

FN 7 1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18472-17	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 1 X 3	NONE	88	
	LDW280-18472-15	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.020 x 2 x 3	T6	88	
	LDW280-18472-13	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.020 x 2 x 2	T6	88	
	LDW280-18472-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.020 x 3 X 5	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18472

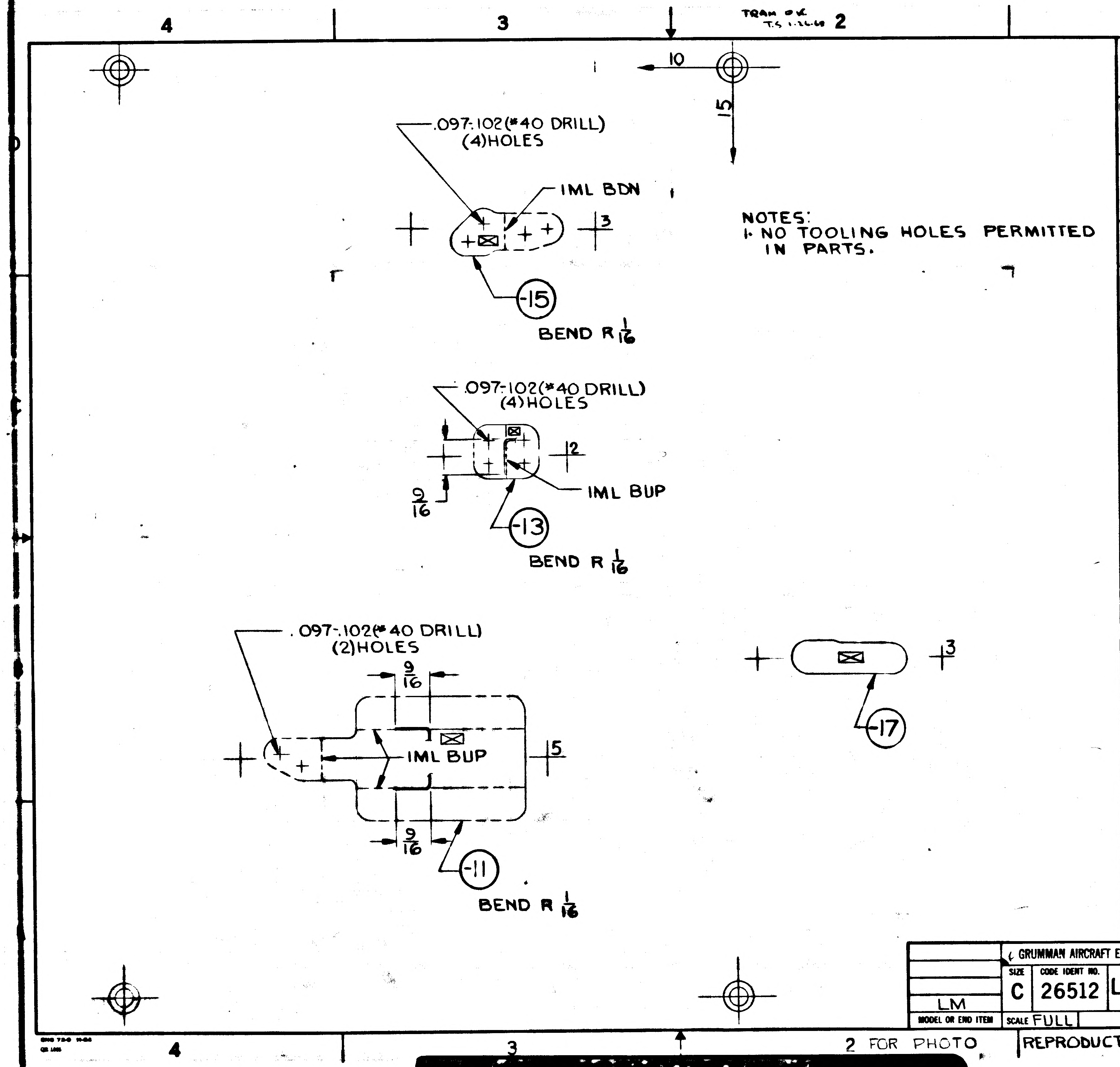
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100


4
3
2
1
10
15
.097-.102(#40 DRILL)
(4)HOLES
IML BDN
3
-15
BEND R $\frac{1}{16}$
.097-.102(#40 DRILL)
(4)HOLES
12
$\frac{9}{16}$
IML BUP
-13
BEND R $\frac{1}{16}$
.097-.102(#40 DRILL)
(2)HOLES
$\frac{9}{16}$
IML BUP
5
$\frac{9}{16}$
-11
BEND R $\frac{1}{16}$
3
-17

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMPPART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE C	CODE IDENT NO. 26512	LDW280-18472
	SCALE FULL		SHEET 3.00

LDW280-18472

2 FOR PHOTO

REPRODUCTION 1

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO 934
CONTROL INFO NO. LDW280B2912

(18) FOR ALL PART NO'S LISTED BELOW ADD END ITEM LFM126 FOR LTA-8 WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR LM 4 (34) VEHICLE, N/A LDW 280-54596.

✓ PART NUMBERS (*)	N/A	CHANGE NO
✓ LDW280-18401-11 & -13	LDW280-54596	A1
✓ LDW280-18402-11, -13, -15, -17 -19 & -20		A1
✓ LDW280-18403-11, -13, -15, -17 & -19		A1
✓ LDW280-18472-11, -13, -15 & -17		A1
LDW280M17792-13 A1		A2
LDW280M17793-11	LDW280-54596	A2

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1021-33 CLA 498 PKG 7 (5) C

REASON FOR EO: LTA-8/LM-5 UPDATE

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 126 REQMTS.

GAEC EO RELEASE: JC 5/2/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/27/68			4/26/68	4/2?/68		4/30/68	5-1-68

PRIORITY: C
DRAWING TITLE: * SEE DWG FOR TITLE
DRAWING NO.: LEO 280
EO NO.: 934

5-17-68
ISSUED BY J. FIORELLO (X1681)
SECTION VDI
GROUP NO. 280 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 967
CONTROL INFO NO. LDW280B 3369

FOR THE FOLLOWING PART NO'S. ADD TM-5/R (65) REQMT'S N/A LDW280-54596 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD MOD.	CHG. NO.
LDW280-18401-11	SEE DWG.	1	A2 ✓
-13		1	
LDW280-18402-11		1	A2 ✓
-13		4	
-15		1	
-17		1	
-19		1	
-20		1	
LDW280M17792-13	SEE DWG.	1	A3 ✓

PART NO. *	TITLE	REQD MOD.	CHG. NO.
LDW280-18403-11	SEE DWG.	1	A2 ✓
-13		1	
-15		1	
-17		1	
-19		1	
LDW280-18472-11		8	A2 ✓
-13		8	
-15		5	
-17		2	
LDW280M17793-11	SEE DWG.	1	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ CD 3075 CCA 586 PKG 2T (5)

REASON FOR EO: ADD TM-5/R(65)REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65)REQMTS.

GAEC EO RELEASE: C JK 5/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				RSX	WH			
DATE	5/13/68			5-13-68	5/13/68	5/13/68	5-21-68	
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 967

5-17-68
ISSUED BY J. TAVARES (x1681)/P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 993
CONTROL INFO NO. LDW280B3476	

FOR THE FOLLOWING DWGS ADD M3/FVV (03) REQMTS FOR THE NEXT ASSY & QUANTITIES NOTED.

DRAWING NO. (*)	TITLE	NEXT ASSY	QTY/MOD	CHG NO.
LDW280-54599-1,-3	SEE DWG	LMU280-31002	1 EACH.	A2
LDW280-54596-1		LDW280-54599	1	A6
LDW280-54601-1		LDW280-54599	1	A2
LDW280-18401-11,-13		LDW280-54596	1 EACH.	A3
LDW280-18402-11,-15-17,-19-20			1 EACH	A3
-13			4	
LDW280-18403-11,-13,-15,-17,-19			1EACH.	A3
LDW280-18472-11,-13			8EACH.	A3
-15			5	
-17			2	
LDW280M17792-13			1	A4
LDW280M17793-11		LDW280-54596	1	A4
LDW280M17862-39,-51-53		LMU280-31218	2EACH	B3
-37,-59		LMU280-31218	4EACH	
-49,-57		LDW280-54599	1 EACH.	
-55		LMU280-31217	4	

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NAS 9-1100

LFM

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3049 CCA1064 PKG 5 (5)
REASON FOR EO: UPDATE M3 MOCKUP TO LM-4 QUAD II CONFIGURATION.	DESCRIPTION OF EO: ON (-*) ADDED END ITEM LFM 164 REQMTS.		GAEC EO RELEASE: 6/4/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV (03)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY								
✓		NOT REQD			JAS							
				DATE	5/24/68			5-24-68	6-4-68		5/24/68	6-4-68
					V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	993

ISSUED 1.8 G. HANSMANN. X3352 SECTION V.D.I. GROUP NO. 280 PL 25

DWG 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1338
CONTROL INFO NO. LDW280B 7436

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18461 ✓	B1	SEE DWG
-18464 ✓	A5	↑
-18465 ✓	A4	
-18466 ✓	A5	
-18467 ✓	A4	
-18468 ✓	B1	
-18469 ✓	A2	
-18470 ✓	A4	
-18471 ✓	A5	↓
LDW280 -18472 ✓	A4	SEE DWG

* APPLICABLE DASH NOS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 55 PG. 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF. FROM — *

GAEC EO RELEASE: 2-5-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/69			4-2-69	4/1/69		4/9/69	4/15/69
	VDI							

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1338

082869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1551
CONTROL INFO NO. LDW2 .0B8117

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

	DRAWING № *	TITLE	CHANGE №
✓	LDW280-18465	SEE DWG	A5
✓	468		B2
✓	469		A3
✓	470		A5
✓	472		A5
	475		B6
	LDW280-18477	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: Sub 8-13-69; SK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	PH				M			Bauman
DATE	7-29-69			7/29/69	8-2-69			8/14/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1551

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
				LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	2	LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	1 EA
				LM	↑	LM-15 (45)	2	LM	↑	LM-15 (45)	1 EA
				LM		LM-14 (44)	2	LM		LM-14 (44)	1 EA
				LM		LM-13 (43)	2	LM		LM-13 (43)	1 EA
				LM		LM-12 (42)	2	LM		LM-12 (42)	1 EA
				LM		LM-11 (41)	2	LM		LM-11 (41)	1 EA
				LM		LM-10 (40)	2	LM		LM-10 (40)	1 EA
				LM		LM-9 (39)	2	LM		LM-9 (39)	1 EA
				LM		LM-8 (38)	2	LM		LM-8 (38)	1 EA
				LM		LM-7 (37)	2	LM		LM-7 (37)	1 EA
				LM		LM-6 (36)	2	LM		LM-6 (36)	1 EA
				LM	↓	LM-5 (35)	2	LM	↓	LM-5 (35)	1 EA
				LM	LDW280-54602	LM-4 (34)	2	LM	LDW280-54602	LM-4 (34)	1 EA
PART NO.		GAEC SCH NO.		PART NO. LDW280-18474-19		GAEC SCH NO.		PART NO. LDW280-18474-11, -12, -13, -14, -15, -17		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 111

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO			
LAST DASH NO. USED	-19	PRIM NO. 207	AK cc		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LSD 455100A586

CONTRACT NO NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LANGSTEN 2-1-68	RELIABILITY	
LAYOUT BY	HANSMANN 2-7-68		
CHECKED BY	2-7-68		
GR. LEADER	2/9/68		
STRUCTURES	2-14-68	PROJ ENGR	2/13/68
STRUCTURES	2/14/68	REL GROUP	2-15-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - SCIENTIFIC EQUIP.
BAY - THERMAL DOOR - FRAME SPT

SIZE B
CODE IDENT NO. 26512
LDW280-18474
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 9-64

CDR 02-16-68

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18474-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 × 2 × 2	T6	88	
		-17		CHANNEL				.032 × 4 × 19			
		-15		ZEE				.032 × 3 × 17			
		-14		ANGLE				.032 × 2 × 13			
		-13		ANGLE				.032 × 2 × 13			
		-12		CHANNEL				.032 × 6 × 14			
		LDW280-18474-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 × 6 × 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18474

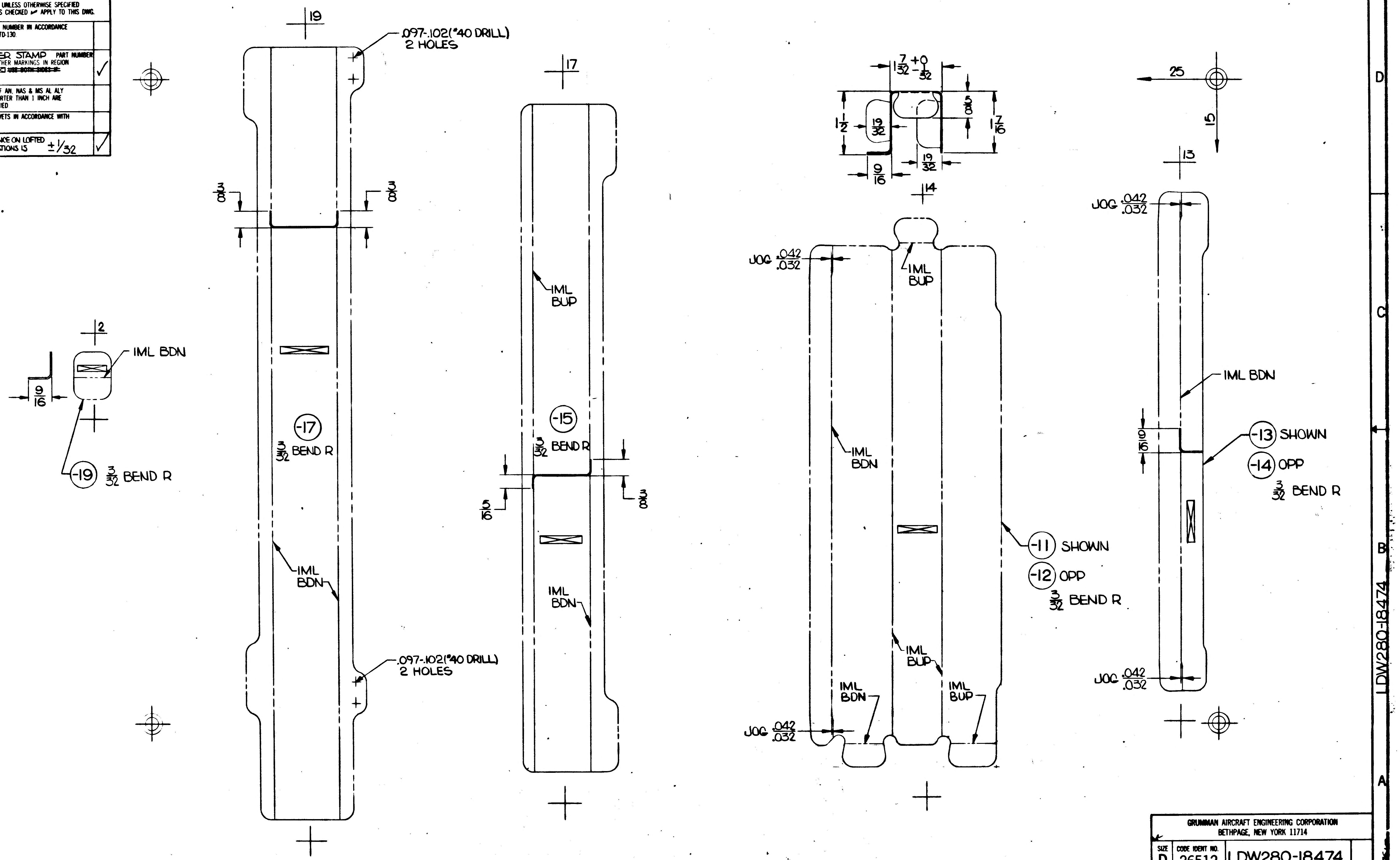
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓


19
.097-.102(#40 DRILL)
2 HOLES
3/8
3/8
-17
3/32 BEND R
IML BDN
.097-.102(#40 DRILL)
2 HOLES
17
IML BUP
-15
3/32 BEND R
5/16
3/8
IML BDN
2
IML BDN
9/16
-19 3/32 BEND R
7/32 +0 -1/32
1 1/2
19/32
5/8
1 7/16
9/16
19/32
14
JOG .042/.032
IML BUP
IML BDN
IML BUP
IML BDN
IML BUP
-11 SHOWN
-12 OPP
3/32 BEND R
JOG .042/.032
25
15
13
JOG .042/.032
IML BDN
9/16
-13 SHOWN
-14 OPP
3/32 BEND R
JOG .042/.032
8
7
6
5
4
3
2
1
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LDW280-18474

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18474
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18474

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 966
CONTROL INFO NO. LDW280 B-3249

ADD TM-5/R(65)EFF TO THE FOLLOWING DWGS & DASH NOS.

DWG NO.(*)	NO REQD PER VEH	N/A	TITLE	CHG NO
/				
/				
/				
LDW280-54837-3	1	LDW280-54602	SEE Dwg	A7
-54837-5	1			
-54837-7	1			
-18464-17	1			A1
-18464-11	1			
18464-13	1			
18464-15	1			
18465-11	2			
-12	2			
-13	1			A1
-14	1			
-15	1			
-17	1			
18465-19	2			
18466-11	1			
-12	1			
-13	1			
-14	1			A1
-15	2			
-16	2			
-17	2			
18466-18	2			
18467-11	1			
-13	1			A1
-15	1			
-17	1			
LDW280-18467-19	1	LDW280-54602	SEE DWG	

DWG NO.	NO REQD PER VEH	N/A	TITLE	CHG NO.
/				
LDW280-18474-11	1	LDW280-54602	SEE DWG	
-12	1			
-13	1			A1
-14	1			
-15	1			
-17	1			
18474-19	1			
18523-11	1			
-13	2			
-15	2			A1
-17	2			
18523-19	1			
18523-14	2			
				A2
M17845-11	1			
M17839-11	4			A2
M17841-11	2			A1
M17843-11	2			A2
M17844-11	1			A1
M17844-12	1			
M17846-11	1			A1
LDW280 M17846-12	1	LDW280-54602	SEE Dwg	
/				
/				
/				
/				
/				
/				
/				

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3075CCA 586 PKG 2I (5)

REASON FOR EO: TO INCLUDE ALSEP ON TM-5/R(65)

DESCRIPTION OF EO: ON (*) ADDED TM-5/R (65) REQMTS

GAEC EO RELEASE: JK 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY / DATE
LM		TM-5/R(65)		REVISE DWG ✓ / RECORD EO	NOT REQD (REWORK / SCRAP)	5/13/68 VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		5-13-68		5/13/68	5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 966

5-17-68
ISSUED BY: W MAJUK x3352
SECTION: VDI
GROUP NO. 335 PL 25

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280	EO NO. 982
CONTROL INFO NO. LDW280B2910	

FOR ALL PART NO'S LISTED BELOW ADD LTA 8 (18) EFFECTIVITY WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR N/A LDW280-54602, LM-4(34) VEHICLE:

*PART NUMBERS	N/A	CHANGE NO.
LDW280M17862 -37, -59, -39, -51 & -53	LDW280-66602	B2
LDW280M17846-11, -12		A2
LDW280M17845-11,		A3
LDW280M17844-11, -12		A2
LDW280M17843-11		A3
LDW280M17841-11		A2
LDW280M17839-11		A4
LDW280M17804-19, -21		A3
LDW280-18523-11, -13 -14 -15 -17 & -19		A2
LDW280-18474-11, -12, -13, -14, -15, -17 & -19		A2
LDW280-18467-11 -13 -15 -17 & -19		A2
LDW280-18466-11, -12, -13, -14, -15, -16, -17 & -18		A2
LDW280-18465-11 -12 -13 -14 -15 -17 & -19		A2
LDW280-18464-11, -13 -15 & -17	LDW280-66602	A2

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NAS 9-1100

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33 CCA 498 PKG 6	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ADD LM 4(34) REQ'M'TS ON LTA-8(18) VEHICLE	ON -(*) ADDED END ITEM LFM 126 REQMTS.	VK 5/28/8 C

EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS										
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	JaP	MS		PSX	WN		CaP	
LM	LFM 126	LTA 8(18)		✓		NOT	REQD	DATE	5/16/68	5/16/68		5-15-68	5/16/68		5/16/68	5-27-68
									VDI	~~SUPPORT~~ THERM.	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG FOR TITLE	LEO 280	982

5-17-68
ISSUED BY J. FIORELLO (X1681) SECTION VDI GROUP NO. 280 PL 25

ENG 32.2 REV

LFM

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 995
CONTROL INFO NO. LDW280B3475

FOR THE FOLLOWING DWG'S ADD M3/FVV (03) REQUIREMENTS FOR THE NEXT ASSY & QUANTITIES NOTED.

DWG NUMBER (*)	TITLE	NEXT ASSY.	QTY/MOD	CHG NO.
✓ LDW280-54742-1, 3 & -5	✓	LMU280-31216	1 EACH	A2
✓ LDW280P18282-1	✓	LMU280-31216	1	A9
✓ LDW280-66837-1 & -3	✓	LMU280-31218	1 EACH	A2
✓ LDW280-66793-1 & -3	✓		2 EACH	A1
✓ LDW280-18464-11, -13, -15, -17	✓		1 EACH.	A3
✓ LDW280-18465 -11, -12, -19 -13, -14, -15, -16	✓		2 EACH. 1 EACH.	A3
✓ LDW280-18466-11, -12, -13, -14 -15, -16, -17, -18	✓		1 EACH. 2 EACH.	A3
✓ LDW280-18467-11, -13, -15, -17, -19	✓		1 EACH	A3
✓ LDW280-18474-11, -12, -13, -14, -15, -17, -19	✓		1 EACH.	A3
LDW280-18523-11, -19 -13, -14, -15, -17	SEE DWG		1 EACH. 2 EACH	A3
LDW280M17845-11	✓		1	A4
LDW280M17839-11	✓		4	A5
LDW280M17841-11	✓		2	A3
LDW280M17843-11	✓		2	A4
LDW280M17844-11, -12	✓		1 EACH	A3
LDW280M17846-11, -12	✓		1 EACH.	A3
LDW280M17804-19 -21	✓	LMU280-31218	4 2	A4
LDW280-54767-1, -3, -5, -7	✓	LMU280-31217	1 EACH	A2
LDW280-18562-11 -13 -15, -17, -19	✓	LDW280-66674	7 2 1 EACH.	A4
LDW280-54647-1	✓	LMU280-31216	1	A1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3049 CCA 1064 PKG 3 & 4	(5) GAEC C EO RELEASE VK 6/4/8

REASON FOR EO: UPDATE M3 MOCKUP TO LH-4 QUAD II CONFIGURATION.

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 164 REQMTS.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV (03)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK | SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				RES	WH			
DATE	5/24/68			5-24-68	5/24/68		5/24/68	6-4-68
	V.D.I.							

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 995

5-24-68
ISSUED BY G. HANSMANN X 3352 SECTION V.D.I. GROUP NO. 280 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEE' 'G ORDER

ENG 32.1 REV 3-66

DWG. NO. LEO 280 | EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474	A4	SEE DWG
-18475	B5	
-18477	A3	
-18478	A3	
-18486	C1	
-18487	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD BO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/18/69		4/9/69	4/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1358

052069
ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 - 25

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NAS 9-1100

LDW280-18475 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM
LM	LDW280-23519	LTA-8(3)	1

PART NO. LDW280-18475-11

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM
LM	LDW280-23519	LV-5(45)	1
	LDW280-23519	LV-4(44)	1
	LDW280-23519	LV-5(43)	1
	LDW280-23519	LV-2(42)	1
	LDW280-23519	LV-1(41)	1
	LDW280-23519	LV-0(40)	1
	LDW280-23519	LV-9(39)	1
	LDW280-23519	LV-8(38)	1
	LDW280-23519	LV-7(37)	1
	LDW280-23519	LM-6(36)	1
	LDW280-23519	LV-5(35)	1
LM	LDW280-23519	LM-4(34)	1

PART NO. LDW280-18475-13

GAEC SCH NO. 50

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

WORK PKG FUNCTION NO. 110

5

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	100		200	300
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO USED 1-15

GRUMMAN REPRO A

PRIM NO.

207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ±1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LDD 280-1004666

CONTRACT NO NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE I

DRAWN BY R.SVOBODA 4/4 FEASLY

LAYOUT BY J.CLARK

CHECKED BY ... MCG 11/13/67

GR. LEADER

WEIGHTS

STRUCTURES

PROJ ENGR

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L. I. NEW YORK

CLP
DESCENT STAGE - CLASS II
EJECTION MECHANISM

SIZE B

CODE IDENT NO. 26512

LDW280-18475 A

SCALE NONE

SHEET 100 OF 4

CDR 12-15-67

ENG FORM

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DFT APPD	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REMOVE	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A		[illegible]				✓		LCD 2011 CCA 665	ADDED SH10 SH1 OF 4 WAS SH1 OF 3. ADDED -3 EFF LM-4 THRU LM-15. 1 REQD/VEH. N/A LDW280-23519. RESTRICT -1 TO LTA-3. ADDED NOTE 2.	LTA-3, LM-4 THRU LM-5		✓	[illegible]	[illegible]	[illegible]

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18475	A
SCALE NONE		SHEET 0	

ENG 723 548

01

NAS 9-1100

PART NO.	QTY	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO	ZONE
LDW280-18475-2			CLIP	AL ALLOY SH	QQ-A-250/12	7075-O	.07 x 2 x 3	[illegible]	55	
LDW280-18475-1			CLIP	AL ALLOY SH	QQ-A-250/12	7075-T6	.07 x 2 x 3	NONE	55	

[illegible] ASSEMBLY

SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO	PROCESS SYM OR FINISH NO	GRUMMAN SPEC OR MILITARY SPEC
						55	ANODIZE	LSP-14-9030

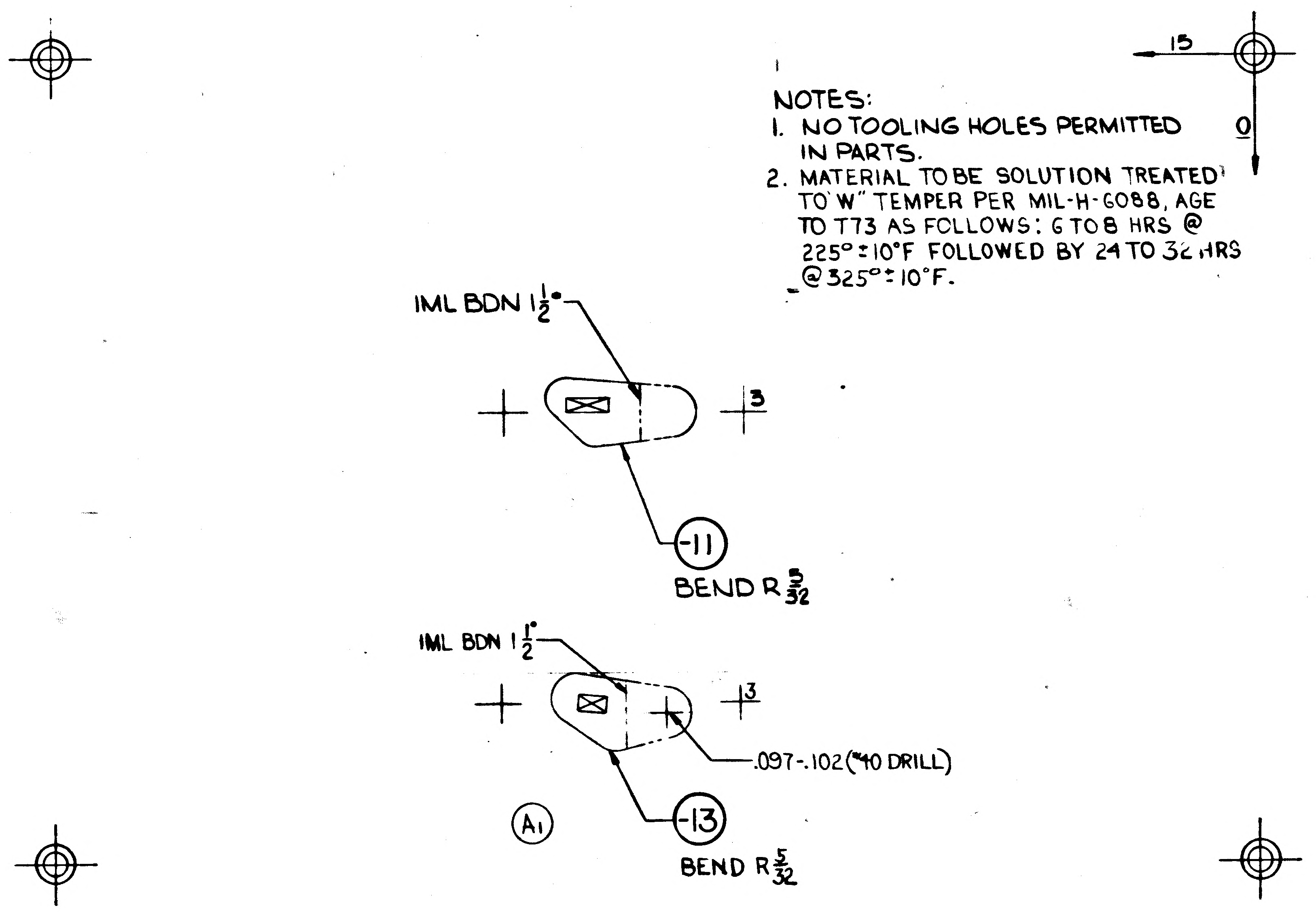
I & T: CERTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18475	A

SCALE NONE SHEET [illegible]

01 NAS 9-1100



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. MATERIAL TO BE SOLUTION TREATED TO "W" TEMPER PER MIL-H-6088, AGE TO T73 AS FOLLOWS: 6 TO 8 HRS @ 225° ± 10°F FOLLOWED BY 24 TO 32 HRS @ 325° ± 10°F.

TRANS 8/6 REL 11/8/67

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .008 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18475	A
	SCALE FULL		SHEET 3.00	

LDW280-18475A

LDW280-18475A

2 FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 940
CONTROL INFO NO. LDW280B3287

FOR ALL DASH NO.'S ✱ ON THE FOLLOWING DWGS. WHICH HAVE LM-5 EFFECTIVITY, ADD TM-5/R (65) EFFECTIVITY QTY ¢ N/A TO REMAIN THE SAME AS ON LM-5.

DRAWING NUMBER	TITLE	CHANGE NUMBER
LDW280M17809	SEE DWG	A2
M17811		A5
M17812		A1
M17813		B1
M17816		A3
M17835		A1
M17847		A2
M17848		A1
M17849		A2
M17851		A1
M17852		A3
M17869		A1
M17870		A1
M17871		A1
M17873		A1
M17874		A1
M17875		A1
M17876		A1
M17877		A2
M17878		A1
M17883		A1
M17889		A2
-18405		A4
-18406		A2
-18475		B1
-71505		A1
-18490		A3
-18507		A3
M17988		A1
LDW280M17989	SEE DWG	A1

✱ USE APPLICABLE DASH NO'S.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 PKG 1 (5)

GAEC EO RELEASE C JK 5/9/68

REASON FOR EO: INSTALLATION OF M.E.S.S. IN TM-5/R

DESCRIPTION OF EO: IN M/B FOR ✱ ADDED TM-5/R EFFECTIVITY.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REWORK REQD SCRAP

APPROVED BY: VDI 5/6/68 — GROUP LEADER RGF 5-6-68 — STRESS GROUP WJW 5/6/68 — PROJ ENGRG 5/6/68 — 5-8-68

SUPPORT — RELIAB. GROUP — LIAISON ENGRG

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 940

10 MAY 68 ISSUED BY J.BACKOFEN/P.THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO LEO 280 | EO NO. 941
CONTROL INFO NO. LDW280B2078

FOR ALL DASH NO.'S* ON THE FOLLOWING DWGS. WHICH HAVE LM-5 EFFECTIVITY, ADD LTA-8 (18) EFFECTIVITY QTY & N/A TO REMAIN THE SAME AS ON LM-5, PER LFM127.

DRAWING NUMBER	TITLE	CHANGE NUMBER
✓ LDW280M17809	SEE DWG	A3
✓ M17810		A1
✓ M17811		A6
✓ M17812		A2
✓ M17813		B2
✓ M17816		A4
✓ M17835		A2
✓ M17847		A3
✓ M17848		A2
✓ M17849		A3
✓ M17851		A2
✓ M17852		A4
✓ M17869		A2
✓ M17870		A2
✓ M17871		A2
✓ M17873		A2
✓ M17874		A2
✓ M17875		A2
✓ M17876		A2
✓ M17877		A3
✓ M17878		A2
✓ M17883		A2
✓ M17889		A3
✓ -18405		A5
✓ -18406		A3
✓ -18475		B2
-71505		A2
✓ -18490		A4
✓ -18507		A4
M17988		A2
✓ LDW280 M17989	SEE DWG	A2

LFM

* USE APPLICABLE DASH NO'S.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCR 1021-34 PKG 10 CCA-668 (5)

REASON FOR EO: UPDATE LTA-8 TO LM-5 CONFIGURATION

DESCRIPTION OF EO: IN M/B FOR * ADDED LTA-8 EFFECTIVITY PER LFM 127.

GAEC 1C EO RELEASE: JK 5/10/68

MODEL	EFFECTIVITY E1	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM127	LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY: Jrs | DATE: 5/6/68 | —

VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
			PST 5-6-68	WJW 5/6/68		5/6/68	5-10-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 941

051568 ISSUED BY J. BACKOFEN/P. THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

Q1 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18475

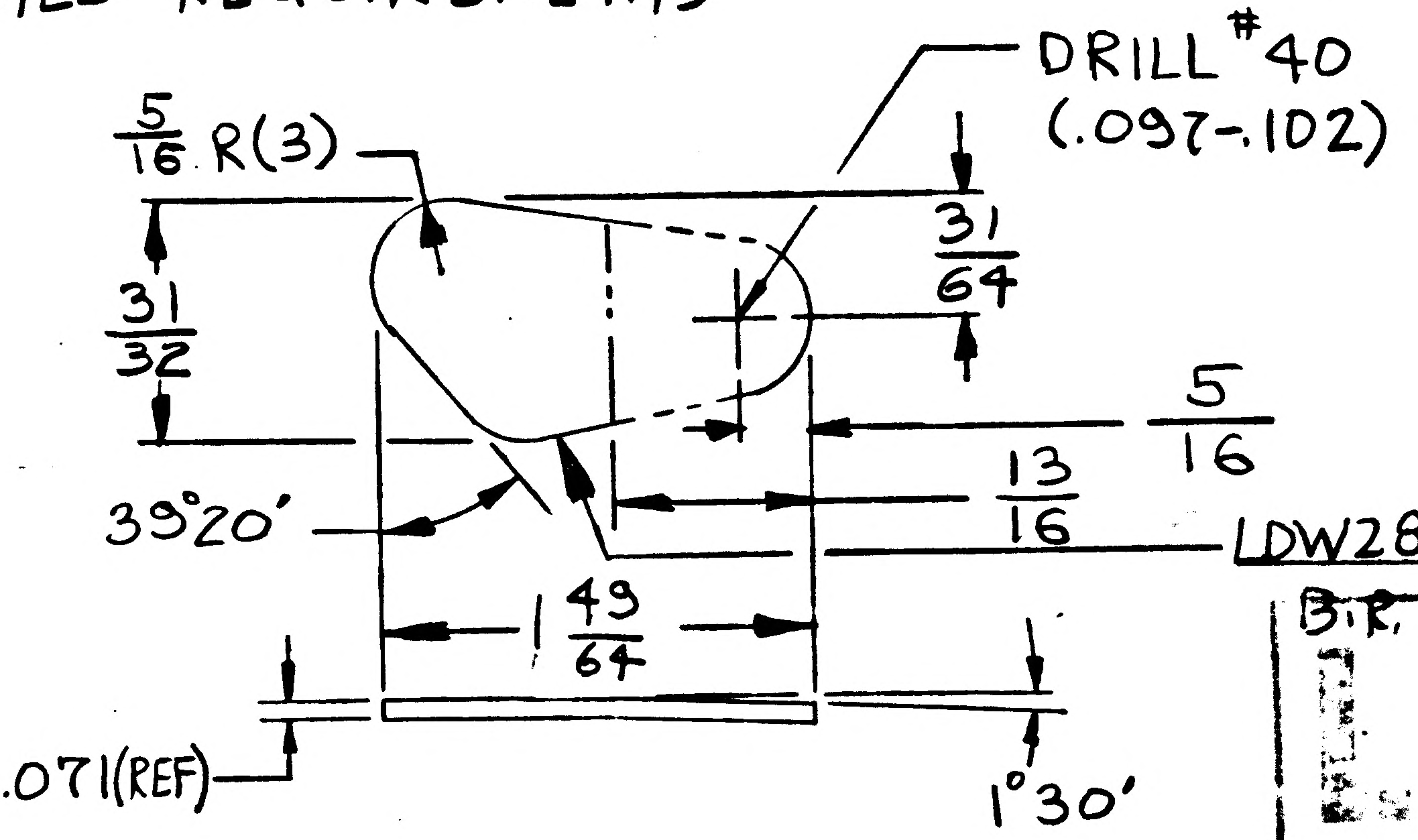
EO NO. B3

CONTROL INFO NO. LDW280-B3439

ADD -15, N/A LDW280-23519, EFF LM-4(34) THRU LM-15(45), LTA-8(18), TM-5/R(65)
MATERIAL: AL ALY SH. QQ-A-250/12, 7075-T6, .071×2×3, PROCESS: NONE
FINISH: 88 (ANODIZE PER LSP-14-9030), I & T: NONE

FOR -13, REMOVE ALL REQUIREMENTS

REMOVE NOTE 2.



LDW280-18475-15 CLIP

B.R. 5/32

LFM

PARTS TO BE MADE PER EO

~~CCA 586~~ (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2011 PKG 24 & LCD 1021-34 PKG 10 (CCA 668); LCD 3025 PKG 1

REASON FOR EO: TO CORRECT DESIGN ERROR

DESCRIPTION OF EO: ADDED -15, N/A LDW280-23519, EFF LM-4 THRU LM-15, LTA-8(18), TM-5/R(65)
REMOVED -13 & NOTE 2

GAEC EO RELEASE: C JK 5/15/68

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 127	LTA-8(18)	
LM		LM-4(34) THRU	LM-15(45)
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-13	DATE	5-14-68			5-14-68		5/14/68	5-14-68	
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPT~~

PRIORITY: C

DRAWING TITLE: CLIP ~ D/S ~ QUAD IV ~ EJECTION MECHANISM

DRAWING NO. LDW280-18475

EO NO. B3

CDR 05-21-68

ISSUED BY J. CLARK X1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1019
CONTROL INFO NO. LDW280B3636

FOR ALL DASH NO.'S* ON THE FOLLOWING DWGS WHICH HAVE LM-5 EFFECTIVITY, ADD D.V.T. (70) EFFECTIVITY, QTY & N/A TO REMAIN THE SAME AS ON LM-5.

DRAWING NUMBER	TITLE	CHANGE No.
LDW280 M17809	SEE DWG	A4 ✓
M17810		A2 ✓
M17811		A7 ✓
M17812		A3 ✓
M17813		B3 ✓
M17816		A5 ✓
M17835		A3 ✓
M17847		A5 ✓
M17848		A3 ✓
M17849		A5 ✓
M17851		A3 ✓
M17852		A5 ✓
M17869		A3 ✓
M17870		A3 ✓
M17871		A3 ✓
M17873		A3 ✓
M17874		A3 ✓
M17875		A3 ✓
M17876		A3 ✓
M17877		A4 ✓
M17878		A3 ✓
M17889		A5 ✓
M17988		A3 ✓
M17989		A3 ✓
-18405		A6 ✓
-18406		A4 ✓
-18475		B4 ✓
-18490		A5
-18507		A5
LDW280-71505	SEE DWG	A2

* USE APPLICABLE DASH NO'S.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3128 PKG I (5)

REASON FOR EO: DES. VER. TEST OF M.E.S.S.

DESCRIPTION OF EO: IN M/B FOR * ADDED DVT (70) EFFECTIVITY.

GAEC EO RELEASE: C 6/23/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	5/27/68			5/27/68	5/27/68	5/27/68	6-22-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1019

31 MAY 68 ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477	A3	
-18478	A3	
-18486	C1	
-18487	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG	
APPROVED BY								
DATE				4-2-69			4/9/69	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1358

052869 ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO: 335 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1551
CONTROL INFO NO. LDW 280 B 8117		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18465	SEE DWG	A5
✓ 468		B2
✓ 469		A3
✓ 470		A5
✓ 472		A5
✓ 475		B6
LDW 280-18477	SEE DWG	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	Sub 8-13-69 JK 8/15/9

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQ'D		DATE	7-29-69			7/29/69	M 8-2-69		8/ /1 Bauman 8/14/69
LM		LTA-11 ([redacted]) (23)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1551

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 781

CONTROL INFO NO. LDW280B7934

FOR*, N/A LDW280-23519 DELETE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF

DWG NO.*	DASH NO.*	DWG TITLE	CHG NO.
[illegible]	[illegible]	[illegible]	[illegible]
LDW280-18477	-11	SEE DWG	A5
-18490	-11 & -13		B3
-18507	-15		B3
LDW280-18475	-15	SEE DWG	B7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 72

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR*, DELETED LM-10(40) THRU LM-14(44) & LTA-11(23) EFF N/A LDW280-23519

GAEC EO RELEASE: JK 2/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44) &	LTA-11(23)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					WPA			
DATE	12/4/69			12/5/69	12/10/69		12/11/69	12/12/69

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 781

CDR 12-12-69

ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL. 25

01

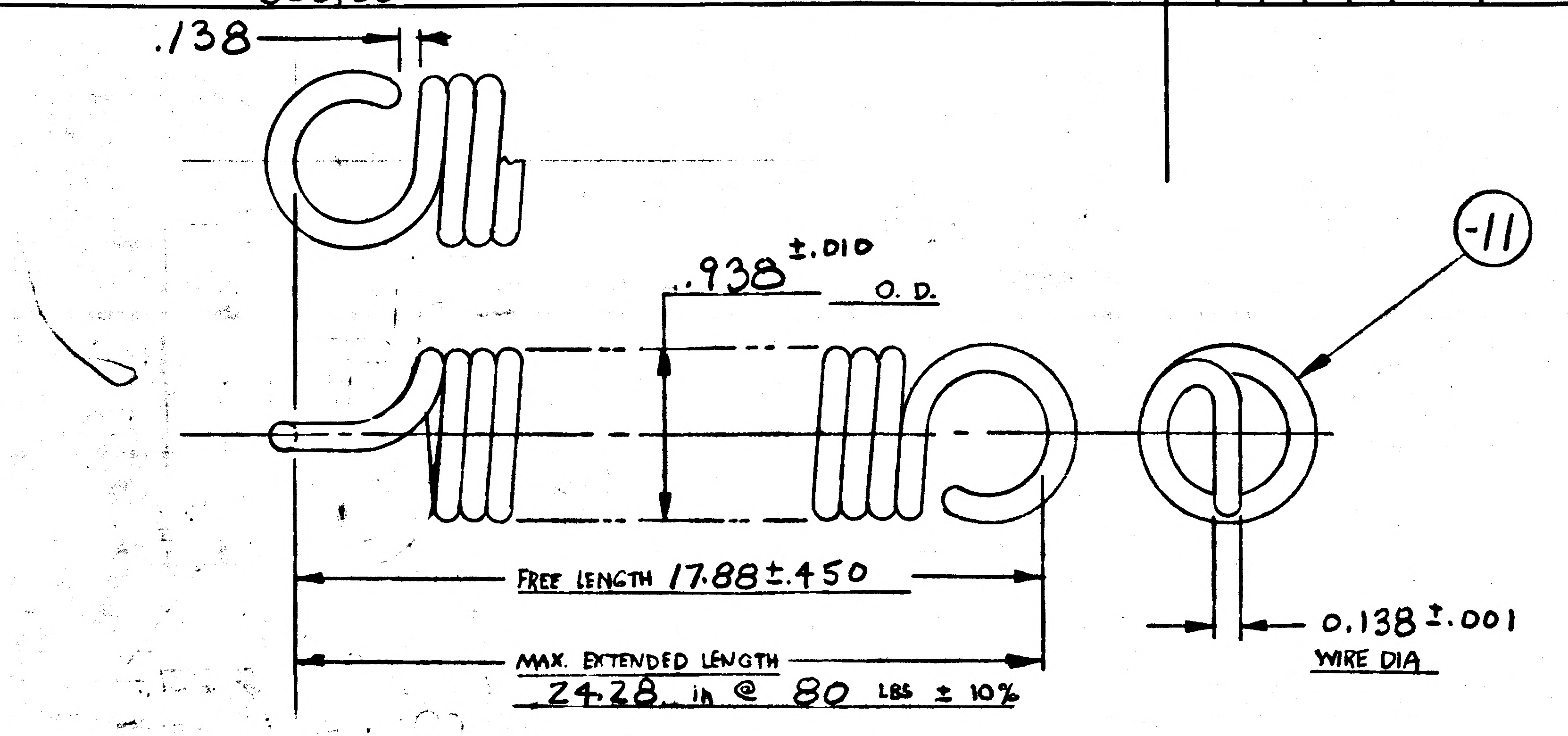
NAS 9-1100

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	APPD: ENGRG	APPD: GOVT

ENGINEERING INFORMATION ONLY

DEFLECTION RATE: 8.60 #/in MAX. LOAD IN RANGE: 80 #

DESIGN SPRING LIFE 500,000 CYCLES AT STRESS RANGE 66.7 %



MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23519	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-23519	LTA-3(13)	1

NOTES CHECKED ✓ APPLY TO THIS DRAWING

✓	NO. OF ACTIVE COILS: 119	✓	STRAIN RELIEVE AFTER FORMING.
	SPRING TO OPERATE INSIDE OF	✓	MAGNAFLUX
	SPRING TO OPERATE OVER DIA PIN	✓	END LOOP MEAN DIA TO BE SAME AS COIL MEAN DIA UNLESS OTHERWISE SPECIFIED
	TOLERANCE ON PROPORTIONATE LOAD ± 10%	✓	GAP IN END LOOPS SHALL BE EQUAL TO ONE WIRE DIA UNLESS OTHERWISE SPECIFIED
✓	INITIAL TENSION: 25 #	✓	FINISH: CADMIUM PLATE, QQ-P-416
✓	DIRECTION OF COILING: OPTIONAL	✓	INSPECTION TEST LOAD AT 24.28 INCHES TO BE 80 LBS ±10%

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18477-11	E	MUSIC WIRE	QQ-W-470	MUSIC WIRE

PART NO. LDW280-18477-11

GAEC SCH NO. 50

WORK PKG FUNCTION # 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS — DECIMALS — ANGLES ± 1/32 ±.010 ± 1/2°

S	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD2011(CCA668)	

GRUMMAN REL INFO	PRIM NO.		
	JK(00)		
	207	MP-16	12/13/67

CONTRACT NO. NAS-9-1100

DRAWN BY	J. CLARK	RELIABILITY	
LAYOUT BY	J. CLARK		
CHECKED BY	C.N. Bott		
GR LEADER	Thorjusen 11-28-67		
VEH. DES. INT	11/28/67		
STRUCTURES	W/M RC 12/13/67		
STRUCTURES	12/13/67	PROJ ENGR	12/13/67
WEIGHTS		REL GROUP	Bott 12-13-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
EJECTION MECHANISM
D/S QUAD IV

SIZE	CODE IDENT NO.	
B	26512	LDW280-18477

SCALE NONE SHEET 1 OF 1

ENG 77.11 9-64

C.D.R. 12-08-67

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18477
EO NO. A1
CONTROL INFO NO. LDW280-B2264

FOR -11, REMOVE REQUIREMENTS FOR LM-4(34) THRU LM-15(45)
WAS LTA-3(13), LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD2011 (CCA 668)

PKC #24

REASON FOR EO: PARTS OVERSTRENGTH

DESCRIPTION OF EO: FOR -11, REMOVED REQUIREMENTS FOR LM-4(34) THRU LM-15(45) WAS LTA-3(13), LM 4(34) THRU LM-15(45).

GAEC EO RELEASE: C HF 3/1/68 5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	2/27/68			2/26/68	2/28/68		2/27/68	2-29-68
S	V.D.I	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SPRING EJECTION MECHANISM ~ D/S ~ QUAD IV
DRAWING NO.: LDW280-18477
EO NO.: A1

03-08-68
ISSUED BY J. CLARK x1153 SECTION Y.D.I GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18477
EO NO. A2
CONTROL INFO NO. LDW280 B5947

FOR -11 ADD EFF LM-5(35) THRU LM-15(45), QUAL TEST (72), TM-5/R(65)
N/A LDW280-23519 1 REQ'D/VEH

ECP-C064 | ECPA070E

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD2011 (CCA668) PKG #24 | LCD3128 PKG #1 | LCD3075 (CCA586) PKG 1

REASON FOR EO: ADDITIONAL REQUIREMENTS FOR DEPLOYMENT OF MOD. EQUIP. STOWAGE ASSY

DESCRIPTION OF EO: FOR-11
ADDED EFF LM-5(35) THRU LM-15(45), TM-5/R(65, QUAL TEST(72)
N/A LDW280-23519 . 1 REQ'D/VEH

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	LM-15(45)
		TM-5/R(65)	
		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REWORK REQ'D SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				RSF	N/A			LM
DATE				10/22/68	10/22/68			10-24-68

PRIORITY: C

DRAWING TITLE: SPRING D/S - QUAD IV - EJECTION MECH

DRAWING NO. LDW280-18477

EO NO. A2

CDR 10/23/68
ISSUED BY J. CLARK × 86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478	A3	
-18486	C1	
-18487	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: JK 4/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/69			4-2-69	4/18/69		4/9/69	4/4/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1358

052869
ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1551
CONTROL INFO NO. LDW 280B 8117

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ~~[illegible]~~)
ADD LTA-11 (23 [illegible]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18465	SEE DWG	A5
✓ 468		B2
✓ 469		A3
✓ 470		A5
✓ 472		A5
✓ 475		B6
✓ LDW 280-18477	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 35 & 36 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

(2) GAEC EO RELEASE: 8-13-69; JK 8/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([illegible]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PH				M		Bauman
DATE	7-29-69			7/29/69	8-2-69		8/14/69
	VDI	SUPPORT	R&D LAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1551

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 781

CONTROL INFO NO. LDW280B7934

FOR*, N/A LDW280-23519 DELETE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF

DWG NO.*	DASH NO.*	DWG TITLE	CHG NO.
[illegible]	[illegible]	SEE DWG	[illegible]
LDW280-18477	-11	SEE DWG	A5
-18490	-11 & -13		B3
-18507	-15		B3
LDW280-18475	-15	SEE DWG	B7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 72

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR*, DELETED LM-10(40) THRU LM-14 (44) & LTA-11(23) EFF N/A LDW280-23519

GAEC EO RELEASE: JK 2/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44) &	LTA-11(23)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY							
DATE	12/9/69			12/5/69	12/10/69	12/1/69	12/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

STRESS GROUP: WPA

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 781

CDR 12-12-69

ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18478

PART NO. LDW280-18478-13 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DESIGN VERIFICATION TEST (70)	1EA
		LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
LM	LDW280-54576	LM-4(34)	1EA

PART NO. LDW280-18478-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 51	REQD PER MODULE OR END ITEM
LM	LDW280-23579	DESIGN VERIFICATION TEST (70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23579	LM-4(34)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED
LAST DASH NO. USED -15

GRUMMAN REL INFO
PRIM NO. 207 JJC/00 [illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ± 1/2°
"G" ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 CCA586

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY T. MACAULAY 1/16/68
LAYOUT BY G. YEE
CHECKED BY WCG 1/17/68
GR LEADER 1-29-68
VEH DES INT 1/31/68
STRUCT
STRUCT 2/5/68
WEIGHTS
RELIABILITY
PROJ ENGR J. Pusateri 2/1/68
REL GROUP Botti 2-6-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - ASTRO DOOR
LOWER HINGE

SIZE B
CODE IDENT NO. 26512
LDW280-18478
SCALE NONE
SHEET 1.00 OF 3

3-1-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18478-15	E		ANGLE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE*AND10134-0702×2 7/8	SEE	NOTE 2	
	-13			ANGLE				DIE*AND10134-0702×2 7/8			
	LDW280-18478-11	E		CHANNEL	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE*101083 X11 1/4	SEE	NOTE 2	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18478

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

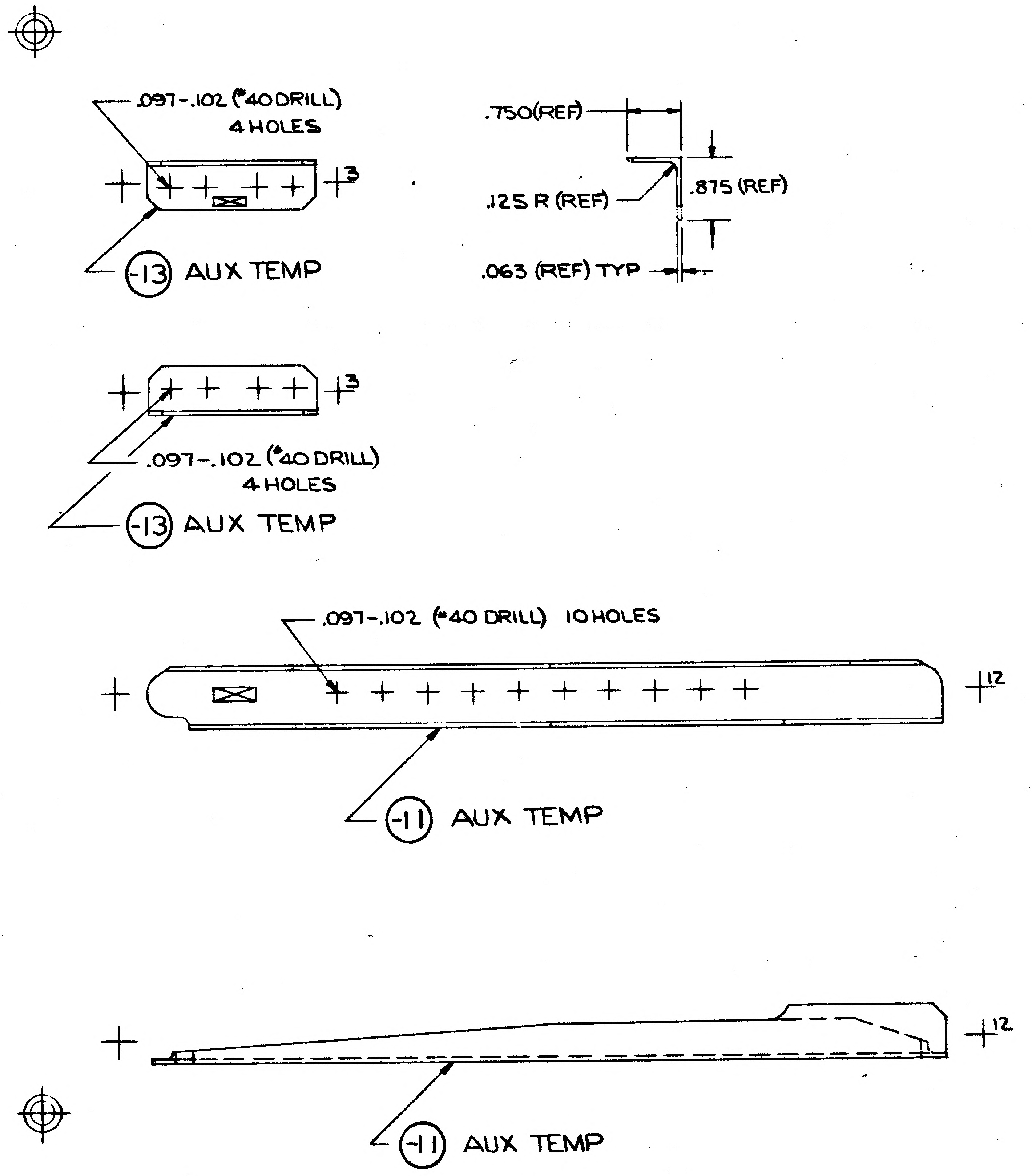
LDW280-18478

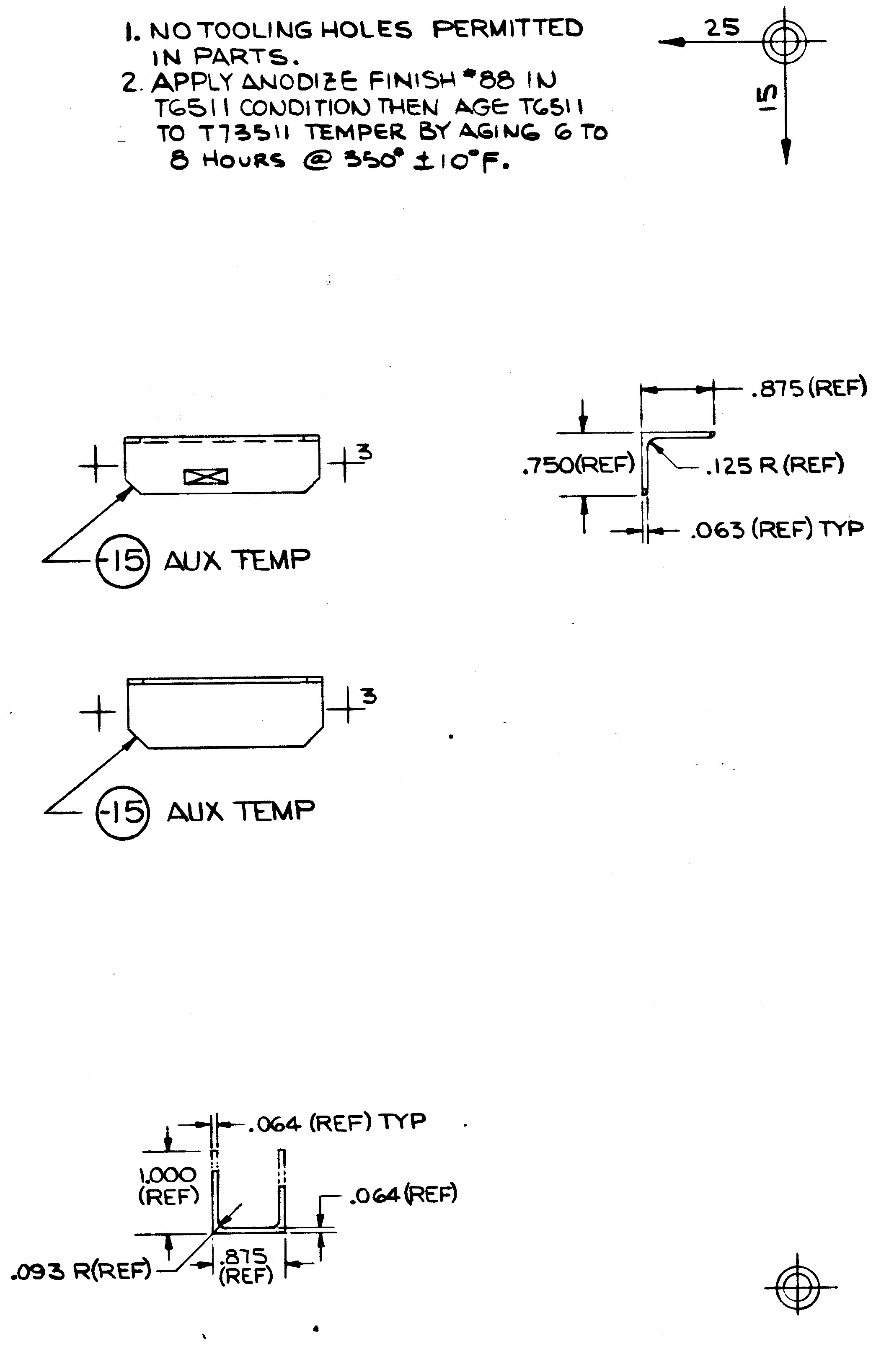
IRAM OK
A.S. 1-11-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. APPLY ANODIZE FINISH #88 IN T6511 CONDITION THEN AGE T6511 TO T73511 TEMPER BY AGING 6 TO 8 HOURS @ 350° ± 10°F.


.097-.102 (#40 DRILL)
4 HOLES
3
(-13) AUX TEMP
.750(REF)
.125 R (REF)
.875 (REF)
.063 (REF) TYP
3
.097-.102 (#40 DRILL)
4 HOLES
(-13) AUX TEMP
.097-.102 (#40 DRILL) 10 HOLES
12
(-11) AUX TEMP
12
(-11) AUX TEMP


25
15
3
(-15) AUX TEMP
.875 (REF)
.750(REF)
.125 R (REF)
.063 (REF) TYP
3
(-15) AUX TEMP
.064 (REF) TYP
1.000 (REF)
.064 (REF)
.093 R(REF)
.875 (REF)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18478
SCALE FULL		SHEET 3.00

FOR PHOTO | REPRODUCTION

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 943
CONTROL INFO NO. LDW280B3241	

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS, N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9 ✓
-17623-19		2	
-18512-11		4	B1 ✓
-17711-25		1	C9 ✓
-17711-27		1	
-17792-21		1	B9 ✓
-17792-23		1	
-18340-15		1	·A4 ✓
-18342-11		1	A3 ✓
-18342-13		1	
-18342-15		1	
-18342-17		1	
-18343-11		1	·A2 ✓
-18343-13		1	
-18343-15		1	
-18343-17		1	
-18343-19		2	
-18344-11		1	·A3 ✓
-18344-13		1	
-18344-15		1	
-18344-17		1	
-18344-19		1	
-18344-21		1	
-18380-11		1	·A2 ✓
-18380-13		1	
-18380-15		1	
-18380-17		1	
-18380-19		1	
-18380-21		1	
-18380-23		1	
-18386-11		1	·A2 ✓
-18386-13		1	
-18386-15		1	
-18386-16		1	
-18386-17		1	
-18386-19		1	
-18387-11		3	·A3 ✓
-18387-13		1	
-18387-15		1	
-18387-17		1	
-18387-19		1	
-18387-21		1	
-18389-11		1	·A4 ✓
-18389-15		1	
-18389-16		1	
LDW280-18389-17	SEE DWG.	1	

PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-18388-11	SEE DWG.	1	·A3 ✓
-18388-13		1	
-18388-14		1	
-18388-15		1	
-18388-16		1	
-18390-11		1	·A3 ✓
-18390-13		1	
-18390-15		1	
-18390-17		2	
-18390-19		4	
-18391-11		1	·A1 ✓
-18391-13		1	
-18391-17		1	
-18391-19		1	
-18391-21		1	
-18391-20		1	
M17746-11		1	·A3 ✓
M17742-13		2	·A4 ✓
M17742-14		2	
M17770-11		1	·A3 ✓
-18364-13		1	·A2 ✓
-18364-15		1	
-18364-17		1	
-18364-19		2	
-18364-21		1	
-18392-11		4	·A2 ✓
M17268-1		2	·C5 ✓
M17630-1		1	·B5 ✓
M17741-11		4	·A4 ✓
M17741-13		4	
M17743-13		4	·A3 ✓
M17744-13		4	·A3 ✓
M17745-11		1	·A3 ✓
M17745-12		1	
M17745-13		1	
M17747-11		1	·A5 ✓
M17781-11		1	·A2 ✓
M17782-11		1	·A2 ✓
M17783-11		1	·A1 ✓
M17784-11		2	·A5 ✓
M17784-12		1	
M17777-11		2	·A2 ✓
M17854-11		1	·A2 ✓
-18478-13		1	·A1 ✓
LDW280-18478-15	SEE DWG.	1	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075 CCA 586 PKG 2G (5)
REASON FOR EO: ADD TM-5/R(65) REQMTS.		DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.	GAEC C EO RELEASE: 5/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		TM-5/R(65)		✓ REVISE DWG / RECORD EO	NOT REQD (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	5/13/68			5-13-68	5/17/68		5/13/68	5/16/68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	943

5-17-68

ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280	EO NO. 963
CONTROL INFO NO. LDW280B3378	

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQUIREMENTS, N/A LDW280-23579 FOR QUANTITIES NOTED.

DWG. NO. *	TITLE	REQD/MOD.	CHG. NO.
	SEE DWG.		
LDW280 M17729-11		1	A5
-17885-23		1	B8
-17885-25		1	
-17885-27		2	
M17822-11		1	A1
-17886-27-1		1	C7
-17886-21		1	
-17886-23		1	
-17886-25		1	
-17973-11		1	A5
-17973-15		1	
-18524-11		1	A1
-18524-13		1	
-18524-15		1	
-18524-17		1	
-18382-15		1	A3
LDW280-18478-11	SEE DWG.	1	A2

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2K (5)

GAEC\C EO RELEASE

REASON FOR EO: ADD TM-5/R(65) REQUIREMENTS

DESCRIPTION OF EO: ON-*ADDED TM-5/R(65) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	5/13/68			5-13-68	5/13/68		5/13/68
	VL						

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LE0280

EO NO.: 963

5-17-68
ISSUED BY E. RANSOM / G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478 ✓	A3	
-18486	C1	
-18487	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG 1 CCA 1821	(5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/18 [illegible] 4-9-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	4/1/69			4-2-69	4/18/69		4/9/69	4/14

PRIORITY C
DRAWING TITLE SEE DWG
DRAWING NO. LEO 280
EO NO. 1358

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280
EO NO. 1554
CONTROL INFO NO. LDW 280B 8118

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-18478	SEE DWG	A4
487		A5
489		A4
490		B2
492		A3
500		A3
505		A5
LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SJB 8-13-69; JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D; REWORK; SCRAP

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PPT					M		Bauman	
DATE	7-29-69				7/29/69	8-2-69		8/2/69	8/15/69
	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG ERING ORDER

DWG. NO. LDW280-28478
EO NO. C1
CONTROL INFO NO. LM-5-9553

ON-1 INSTL, IN F/D ON LDW280-11148-13 REVISE THE FOLLOWING LOCATING DIMENSIONS FOR THE GB11D-5-76

CLIPS:		
$1\frac{5}{16}$	S/B	$1\frac{3}{16}$
$2\frac{3}{8}$		$2\frac{1}{4}$
$4\frac{23}{32}$		$4\frac{5}{8}$
$1\frac{19}{32}$		$1\frac{15}{32}$
3		$2\frac{29}{32}$
$2\frac{3}{4}$		$2\frac{27}{32}$
$2\frac{11}{16}$		$2\frac{13}{16}$
$1\frac{9}{16}$		$1\frac{7}{16}$

REWORK NOTE: IF CLIPS HAVE BEEN LOCATED TO PRIOR DIMENSIONS THEY MAY REMAIN AS IS; $\frac{1}{2}$ DIA. HOLES MAY BE ELONGATED UP TO $\frac{1}{8}$ MAX. TO PROVIDE NECESSARY CLEARANCE FOR PROPULSION LINES DUE TO MISLOCATED CLIPS.

DESCRIPTION OF EO (CONT).
2 3/4, 2 11/16 & 1 9/16 RESPECTIVELY.

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO
GB11D CLIPS ADDED PER EO B3 WERE LOCATED INCORRECTLY.

DESCRIPTION OF EO
ON-1 INSTL, IN F/D ON LDW280-11148-13 REVISED THE FOLLOWING DIMS. FOR GB11D-5-76: 1 3/16, 2 1/4, 4 5/8, 1 15/32, 2 29/32, 2 27/32, 2 13/16, 1 7/16 WAS 1 5/16, 2 3/8, 4 23/32, 1 19/32, 3, (CONT).

GAEC EO RELEASE: 16

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	[redacted]
LM		LTA-8(18)	
		LM-1 THRU	LM-15
		(31-45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	VDI					CH		
DATE	10-21-66 12-6-66				10-22	10-21	10-24-66	10-27-66

PRIORITY: C
DRAWING TITLE: SUPPORT INSTL.-A/S-M/S-INTERSTAGE TRUSS-ENG DRAIN LINES
DRAWING NO.: LDW280-28478
EO NO.: C1

ISSUED BY LIAISON - J. Mc GILL X-6452 SECTION VDI-TRAUT GROUP NO.____ PL 35 EMF

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NAS 9-1100

LDW280-18479

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	GAEC SCH NO.	REQD PER MODULE OR END ITEM	PART NO.
LM	LDW280-23589	LTA3 (13)		1 EA	LDW280-18479 -11 & -12
LM	LDW280-23589	LTA3 (13)		2 EA.	LDW280-18479-13 & -17
LM	LDW280-23589	LTA-3(13)	50	4	LDW280-18479-15

WORK PACKAGE FUNCTION #111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO
PRIM NO. LK
207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
CCA556 LCD1433

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY DR Beitler 11/29/67
LAYOUT BY
CHECKED BY A.F. Marzella 12-2-67
GR LEADER 12-2-67
VEH.DES.INT. 12/2/67
STRUCT 12/4/67
STRUCT MF
WEIGHTS
PROJ ENGR 12/4/67
REL GROUP 12/4/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ APOLLO LUNAR SCIENTIFIC EQUIP. PACKAGE SIMULATOR

SIZE B
CODE IDENT NO. 26512
LDW280-18479
SCALE NONE
SHEET 1.00 OF 3

CDR 12-4-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18479-17	E		GUSSET	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 X 4X4	NONE	88	
	-15			GUSSET				.050 X 3X4			
	-13			WEB				.032 X24X27			
	-12			WEB				.032 X21X24			
	LDW280-18479-11	E		WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.032 X 21X25	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

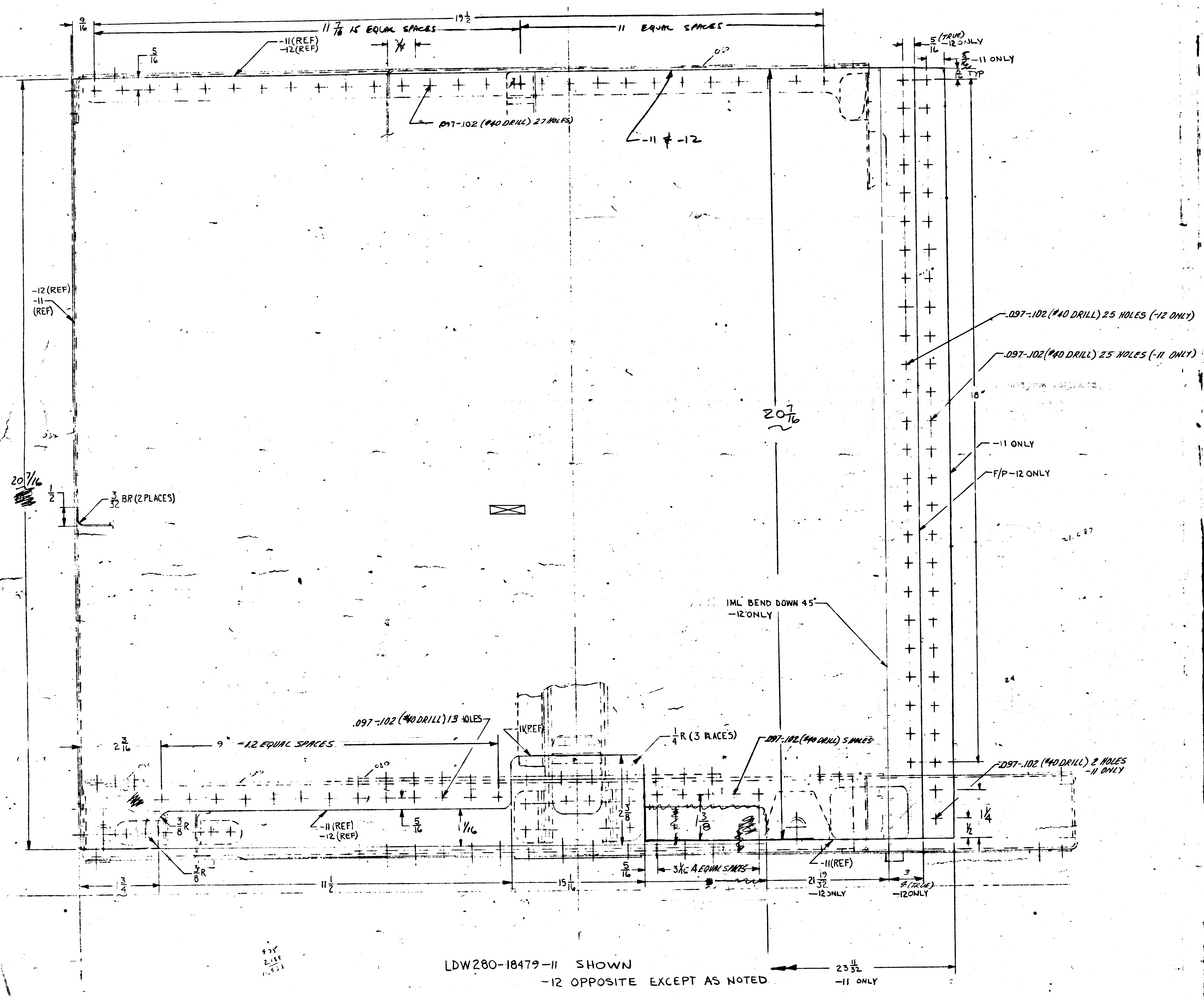
SIZE B | CODE IDENT NO. 26512 | LDW280-18479

SCALE NONE | SHEET 2.00

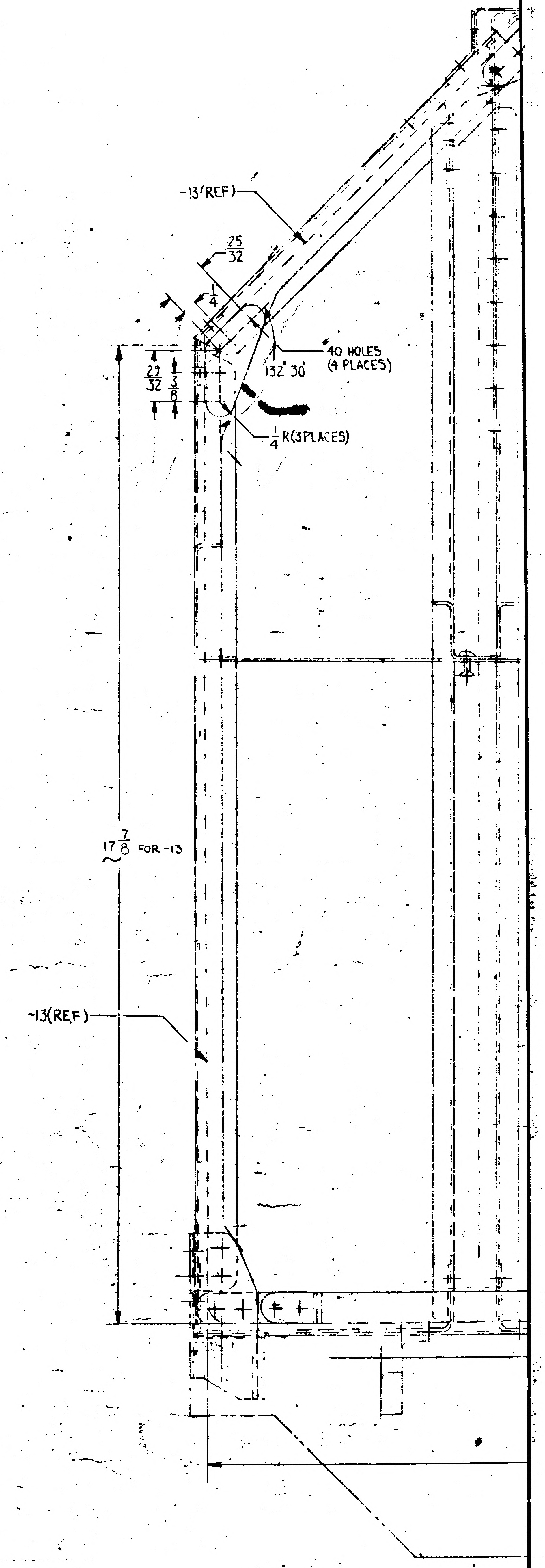
ENG 77.2 5-64

01

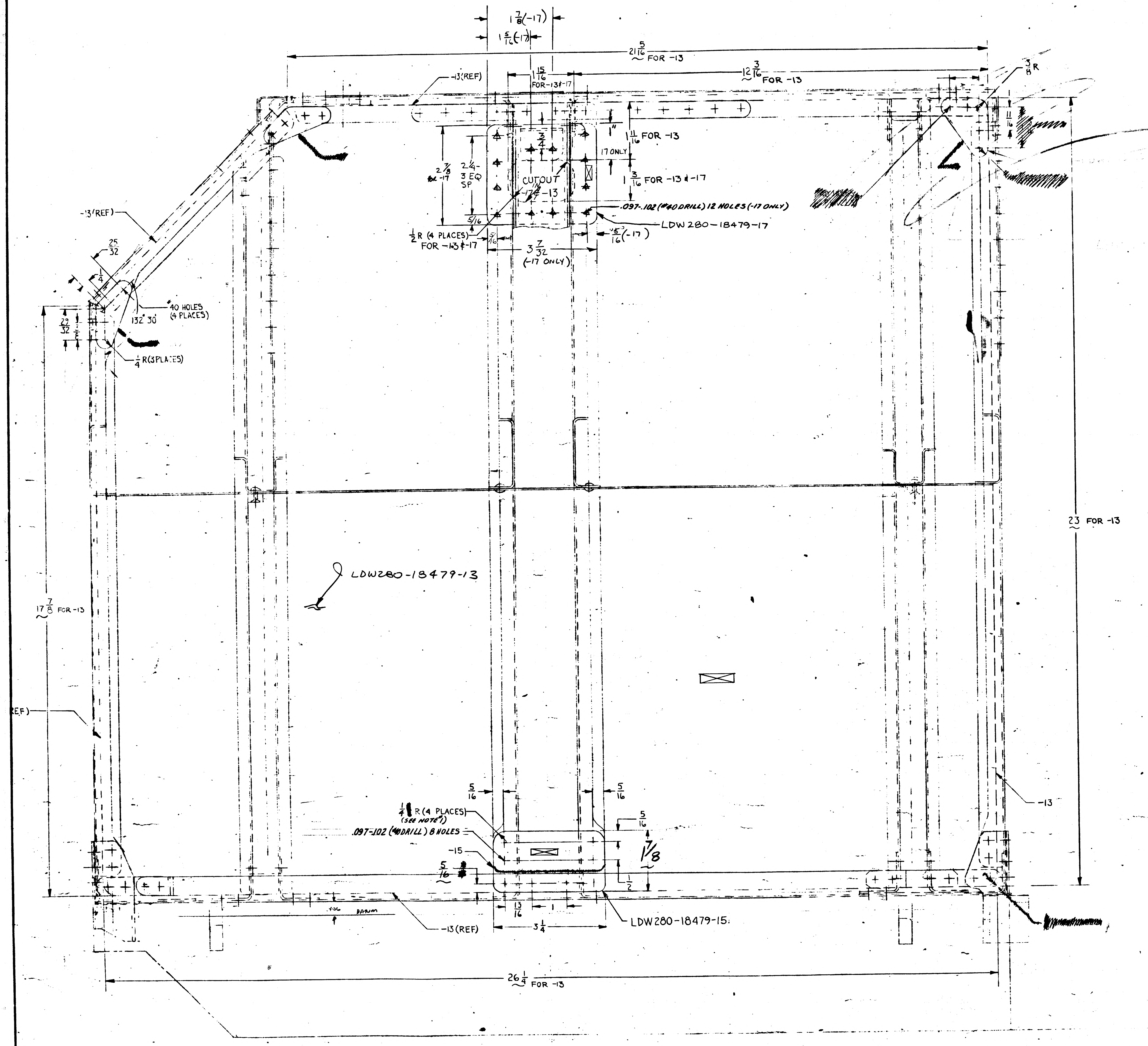
NAS 9-1100


19 1/2
9/16
11 7/16 15 EQUAL SPACES
11 EQUAL SPACES
-11 (REF)
-12 (REF)
5/16
5/16 (TRUE) -12 ONLY
5/16 -11 ONLY
TYP
.097-.102 (#40 DRILL) 27 HOLES
-11 & -12
-12 (REF)
-11 (REF)
20 7/16
1/2
3/32 BR (2 PLACES)
.097-.102 (#40 DRILL) 25 HOLES (-12 ONLY)
.097-.102 (#40 DRILL) 25 HOLES (-11 ONLY)
18
-11 ONLY
F/P -12 ONLY
IML BEND DOWN 45°
-12 ONLY
.097-.102 (#40 DRILL) 13 HOLES
-11(REF)
1/4 R (3 PLACES)
.097-.102 (#40 DRILL) 5 HOLES
.097-.102 (#40 DRILL) 2 HOLES -11 ONLY
2 3/16
9 - 12 EQUAL SPACES
3/8 R
-11 (REF)
-12 (REF)
5/16
1/16
2 3/8
1 3/8
1 1/4
1/2
-11(REF)
3/8 R
1 3/4
11 1/2
15 1/16
5/16
3 1/16 4 EQUAL SPACES
21 19/32 -12 ONLY
3 -12 ONLY
23 11/32 -11 ONLY

LDW280-18479-11 SHOWN
-12 OPPOSITE EXCEPT AS NOTED


-13 (REF)
25/32
1/4
40 HOLES (4 PLACES)
132° 30'
29/32
1/4 R (3 PLACES)
17 7/8 FOR -13
-13 (REF)

01/702 NAS 9-1100


1 7/8 (-17)
1 5/16 (-17)
21 5/16 FOR -13
-13(REF)
1 15/16 FOR -13 & -17
12 3/16 FOR -13
3/8 R
11/16
1 11/16 FOR -13
17 ONLY
2 7/8 (-17)
2 1/4 3 EQ SP
3/4
CUTOUT -17 & -13
1 3/16 FOR -13 & -17
.097-.102 (#40 DRILL) 12 HOLES (-17 ONLY)
LDW280-18479-17
1/2 R (4 PLACES) FOR -13 & -17
5/16
3 7/32 (-17 ONLY)
5/16 (-17)
-13(REF)
25/32
.40 HOLES (4 PLACES)
132° 30'
22/32
1/4 R(3 PLACES)
23 FOR -13
LDW280-18479-13
17 7/8 FOR -13
(REF)
-13
5/16
5/16
1/4 R (4 PLACES) (SEE NOTE 1)
.097-.102 (#40 DRILL) 8 HOLES
-15
5/16
5/16
7/8
1/2
13/16
1
3 1/4
-13(REF)
LDW280-18479-15
26 1/4 FOR -13

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

NOTE:

~~1. ALL INFORMATION NOT REQD. FOR MFG OF LDW280-18479 PARTS IS FOR REF ONLY~~

1. 1/4" OUTSIDE ,RADII OPTIONAL ALL PARTS
2. NO TOOLING HOLES PERMITTED IN PARTS

LDW280-18479

MAY BE
LAYOUT RELEASE ~~[illegible]~~ REDRAWN ON
PRODUCTION FORMAT

ALL INFORMATION NOT REQ'D FOR MFG OF PARTS IS FOR REF ONLY

Q2/02

NAS 9-1100

LDW280-18479

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE K	CODE IDENT NO. 26512	LDW280-18479	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

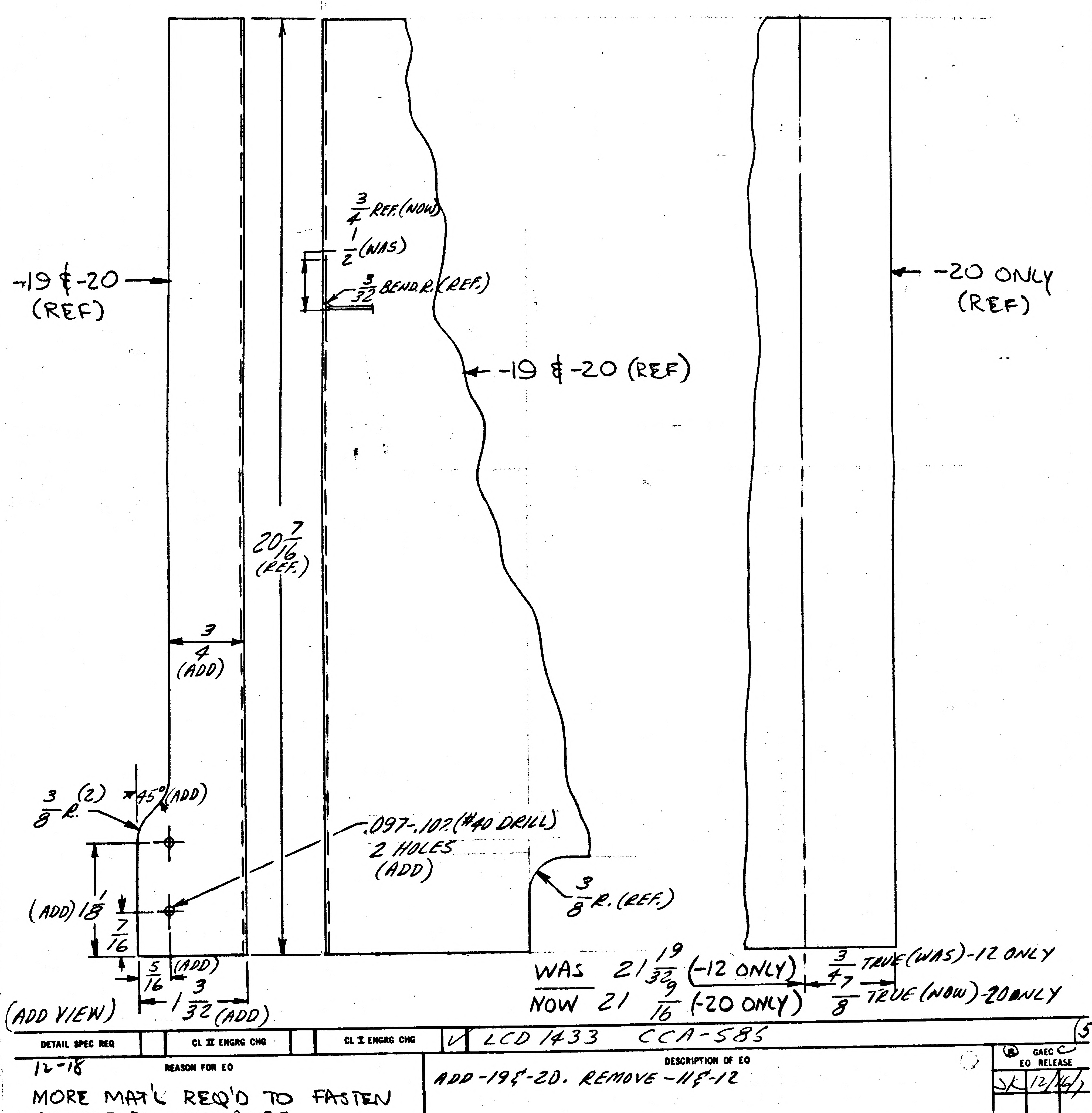
ENGINEERING ORDER

DWG. NO. LDW280-18479

EO NO. A1

CONTROL INFO NO. LDW280B0824

CREATE -19 & -20 (SAME AS -11 & -12 EXCEPT AS SHOWN) MAT'L.: 2024-T3 AL. ALLOY SH.
REMOVE -11 & -12



-19 & -20 (REF)
3/4 REF. (NOW)
1/2 (WAS)
3/32 BEND. R. (REF.)
-19 & -20 (REF)
-20 ONLY (REF)
20 7/16 (REF.)
3/4 (ADD)
3/8 R. (2)
45° (ADD)
.097-.102 (#40 DRILL) 2 HOLES (ADD)
(ADD) 1 1/8
7/16
5/16 (ADD)
1 3/32 (ADD)
3/8 R. (REF.)
(ADD VIEW)
WAS 21 19/32 (-12 ONLY)
NOW 21 9/16 (-20 ONLY)
3/4 TRUE (WAS) -12 ONLY
7/8 TRUE (NOW) -20 ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA-585

5

REASON FOR EO: 12-18 MORE MAT'L REQ'D TO FASTEN ADJACENT MEMBERS

DESCRIPTION OF EO: ADD -19 & -20. REMOVE -11 & -12

GAEC EO RELEASE: JK 12/16/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓			-11 & -12	DATE	12/14/67			12-14-67	12/15/67		12/14/67	12-16-67
REVISE DWG	RECORD EO	REWORK	SCRAP	D	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: WEB ~ DESCENT STAGE ~ APOLLO LUNAR SCIENTIFIC EQUIP. PACKAGE SIMULATOR

DRAWING NO.: LDW280-18479

EO NO.: A1

ISSUED BY 12-18-67 E. RANSOM / F. MARZELLA X9505 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18479
EO NO. A2
CONTROL INFO NO. LDW280B0880

ON LDW280-18479 DELETE -15

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	CCA 586 LCD 1433	② (5)

REASON FOR EO: PART NOT REQ'D

DESCRIPTION OF EO: DELETED -15

GAEC EO RELEASE: C VC 1/2/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY								
DATE	12/27/67				12/27/67	12/26/67		12/27/67	1-2-68
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: WEB-DESCENT STAGE-SCIENTIFIC EQUIPMENT SIMULATOR
DRAWING NO. LDW280-18479
EO NO. A2

1-2
ISSUED BY A.F. MARZELLA EXT 9505 SECTION VEH. DES. & INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. NOTED
EO NO. ~
CONTROL INFO NO. LM-2-4355

IN FLD/DWG, B/M & MOD/BLK ADD -21
(-21 REPLACES & IS IDENTICAL TO -20 EXCEPT
"IML BEND DOWN 45°" SHOULD BE "IML BUP 45°")

IN FLD/DWG, B/M & MOD/BLK DELETE -20

NOTE: -21 IS OPPOSITE TO -19 EXCEPT AS NOTED

DRAWING NUMBER	EO. NO.
✓ LDW280-18479	A3

NHA DESCRIPTION	NHA NUMER	EO. NO.
ON-9, LDW280-18479-21 WAS-20	LDW280-23589	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1433 CCA 586

GAEC EO RELEASE (2) VC

REASON FOR EO: DESIGN ERROR-FLANGE DIRECTION INCORRECT

DESCRIPTION OF EO: IN FLD/DWG, B/M & MOD/BLK ADDED -21 & DELETED -20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(12)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -20

APPROVED BY								
DATE 1/13/68				—	1/10/68	1/10/68	1/12/68	1-11-68
VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C

DRAWING TITLE: WEB-DESCENT STAGE-APOLLO LUNAR SCIENTIFIC EQUIP PKG SIMUL

DRAWING NO. NOTED

EO NO. ~

ISSUED BY LIAISON J. MALONEY 1/10/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11	SEE DWG.	A1
-13		
-15		
-18414-17		
-18455-11		A1
-18479-13		A4
-17		
-19		
-18479-21		
-18480-11		A1
-13		
-15		
-18480-17		
-18481-11		A1
-12		
-13		
-14		
-15		
-16		
-17		
-19		
LDW280-18481-20	SEE DWG.	

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11	SEE DWG	A1
-12		
-13		
-14		
-15		
-16		
-17		
-18		
-19		
-18482-20		
-18483-11		A2
-13		
-14		
-15		
-17		
-18		
-18483-19		
-18484-11		A1
-12		
-13		
-18484-15		
-18501-17		A2
-19		
-20		
-13		
LDW280-18501-21	SEE DWG	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG. 22 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST	ON (*) ADDED DUT (70) REQMTS.	② IC JK 8/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		DUT (70)		REVISE DWG ✓ / RECORD EO	NOT REQD. (REWORK / SCRAP)

APPROVED BY	JAK			G.H. Pitt	JNM		JP		
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-1-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1100

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

LDW280-18480

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-23589	LTA3(13)	2EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	
LDW280-18480-11,-13,-15, &-17		50	

WORK PACKAGE FUNCTION # 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	94.7. 001	
LAST DASH NO. USED	-17	207	MP-16-	12/7/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ☐
CLASS II ENGRG CHANGE ☐
CLASS I ENGRG CHANGE ✓
CCA 586 LCD1433

ok

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	DR Beitler 11/29/7	STRUCT	JJ w/H 12/5/67
LAYOUT BY		STRUCT	12/
CHECKED BY	O. J. Marzella 12-2-67	WEIGHTS	
GP LEADER	Thorgusen 12-2-67		
VEH.DES.INT.	J. Trabosk 12/2/67		
		PROJ ENGR	Pusatere 12/2/67
		REL GROUP	12/4/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE-APOLLO LUNAR
SCIENTIFIC EQUIP. PKG.-INBOARD

SIZE B
CODE IDENT NO. 26512
LDW280-18480
SCALE NONE
SHEET 1.00 OF 3

5

CDR 12-4-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18480-17	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.063×2×4	T6	88	
	-15	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.063×2×4	T6	88	
	-13	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.063×2×5	T6	88	
	LDW280-18480-11	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.063×2×2	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

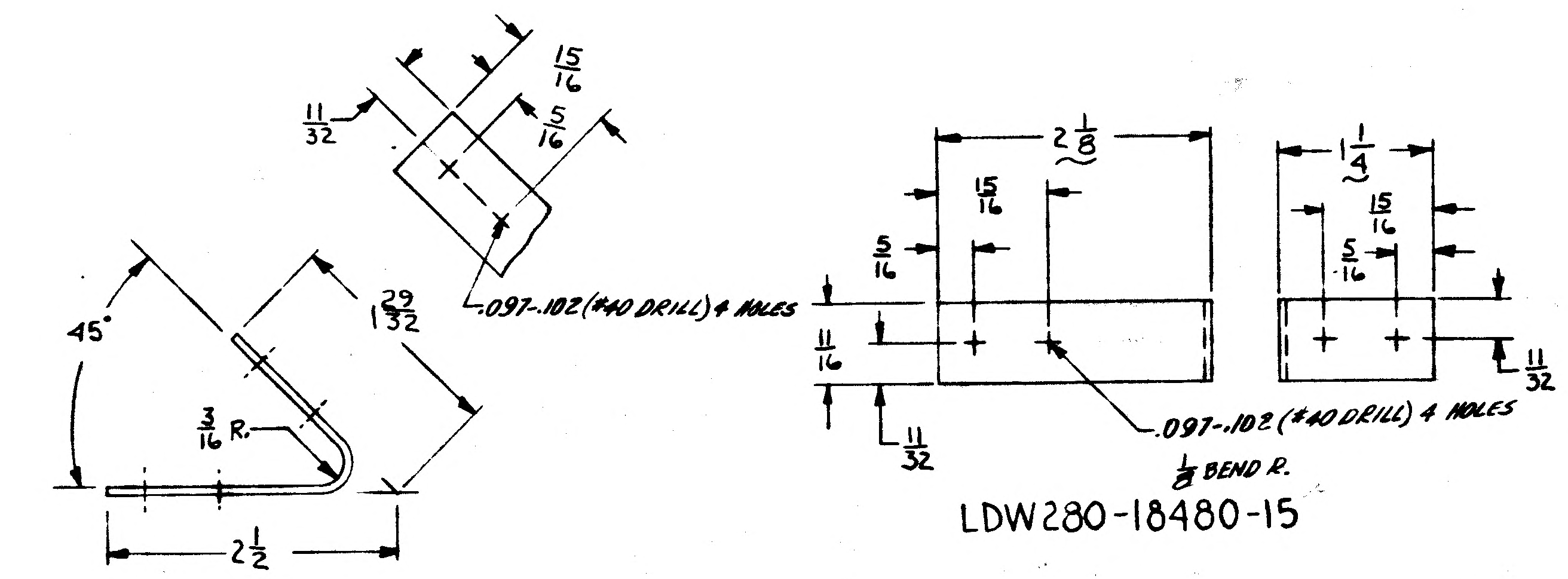
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18480
SCALE NONE
SHEET 2.00

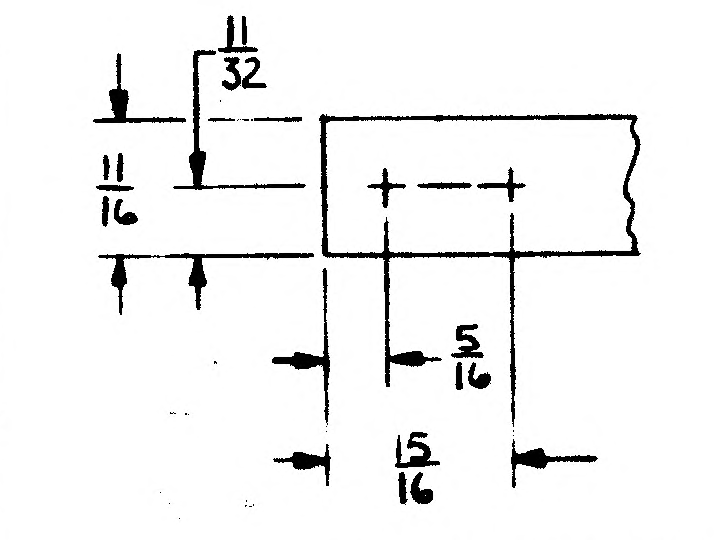
ENG 77.2 5-64

01

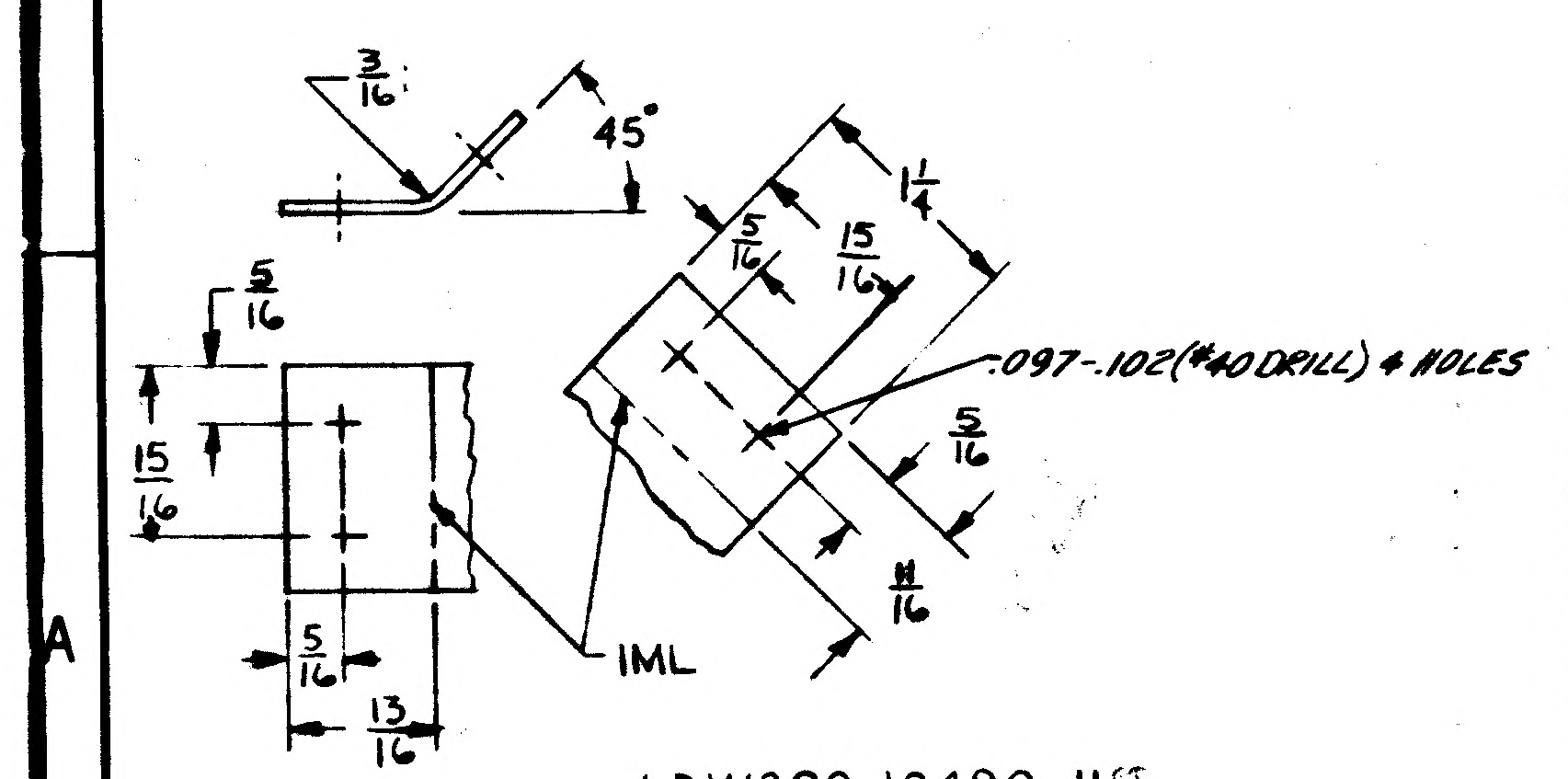
NAS 9-1100


15/16
11/32
5/16
.097-.102 (#40 DRILL) 4 HOLES
45°
1 29/32
3/16 R.
2 1/2
2 1/8
15/16
5/16
11/16
11/32
1 1/4
15/16
5/16
11/32
.097-.102 (#40 DRILL) 4 HOLES
1/8 BEND R.

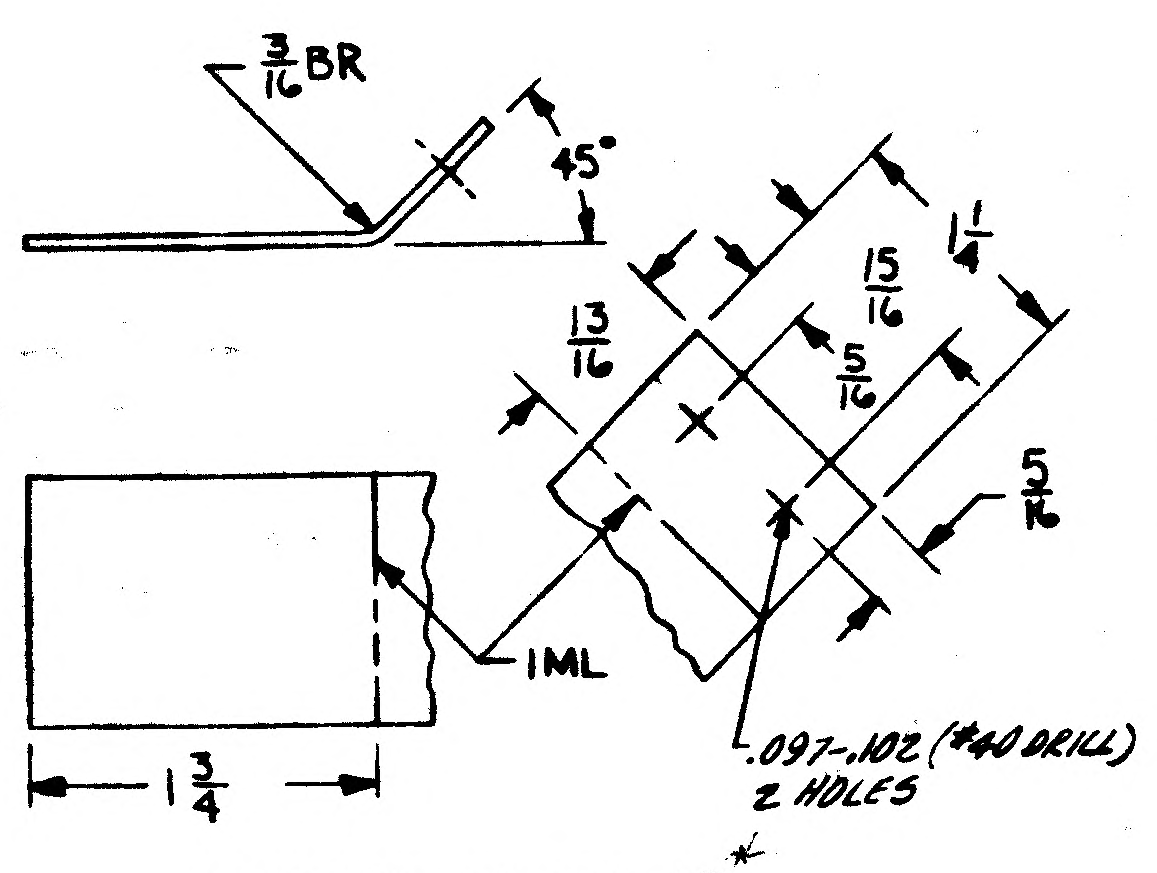
LDW280-18480-15


11/32
11/16
5/16
15/16

LDW280-18480-13


3/16
45°
1 1/4
5/16
15/16
5/16
15/16
.097-.102 (#40 DRILL) 4 HOLES
5/16
11/16
IML
5/16
13/16

LDW280-18480-11


3/16 BR
45°
1 1/4
15/16
13/16
5/16
5/16
IML
1 3/4
.097-.102 (#40 DRILL) 2 HOLES

LDW280-18480-17

NOTE:
1. 1/4" CORNER RADII OPTIONAL.
2. NO TOOLING HOLES PERMITTED IN PARTS.

LAYOUT RELEASE-MAY BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK		
	SIZE C	CODE IDENT NO. 26512	LDW280-18480
LM			
MODEL OR END ITEM	SCALE FULL		SHEET

ENG 73-2 6-64 OGILVIE PRESS, INC. BROOKLYN 17, N. Y.

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11 -13 -15 -18414-17	SEE DWG.	A1
-18455-11		A1
-18479-13 -17 -19 -18479-21		A4
-18480-11 -13 -15 -18480-17		A1
-18481-11 -12 -13 -14 -15 -16 -17 -19 LDW280-18481-20	SEE DWG.	A1

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11 -12 -13 -14 -15 -16 -17 -18 -19 -18482-20	SEE DWG	A1
-18483-11 -13 -14 -15 -17 -18 -18483-19		A2
-18484-11 -12 -13 -18484-15		A1
-18501-17 -19 -20 -13 LDW280-18501-21	SEE DWG	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1433 CCA 536 PKG. 22 (5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DUT (70) REQMTS.

GAEC EO RELEASE: 16 SK 8/1/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD.	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JKS			GH.			JP.	
DATE	7/1/68			7/26/68	7/31/68		7/31/68	8-1-68
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1100

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-15481

				LM	LDW280-23559 (7-5-13)		2	LM	LDW280-23559 (7-5-13)		1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO.	REQD PER MODULE OR END ITEM
PART NO.		SHEET SCH NO.		PART NO. LDW280-15481-17		SHEET SCH NO. 50		PART NO. LDW280-15481-1,-2, -3,-4,-5,-6,-7,-20		SHEET SCH NO. 50	

WIRE HARNESS FUNCTION [illegible]

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBJ SH

SHEET	
REV	
SHEET	
REV	
SHEET	
REV	

LAST SECT LTR USED D

LAST DASH NO USED -20

GRUMMAN REF INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

±1/32 ±.010 ±1/2°

2 DRGE DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS I ENGRG CHANGE

CLASS II ENGRG CHANGE ✓

LCD 402 CCP 555

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY

LAYOUT BY

CHECKED BY

STRESS

SUBJECT

PROJ ENGR

REL GROUP

DATE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L. I. NEW YORK

DESCENT STAGE - APOLLO LM

SCIENTIFIC EQUIP PACKAGE SIMULATOR

SIZE B

CODE IDENT NO. 26512

LDW280-15481

SCALE NONE

SHEET 1 OF 3

CDE 12-4-67

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18481-20	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.040X4X24	NONE	88	
		-19		CHANNEL		QQ-A-250/4	2024-T3	.040X4X24	NONE		
		-17		HAT		QQ-A-250/12	7075	.040X5X24	T6		
		-16		HAT		QQ-A-250/12	7075	.040X5X23	T6		
		-15		HAT		QQ-A-250/12	7075	.040X5X23	T6		
		-14		CHANNEL		QQ-A-250/4	2024-T3	.040X4X9	NONE		
		-13						.040X4X9			
		-12						.040X4X19			
		LDW280-18481-11	E	CHANNEL	AL ALLOY SH	QQ-A250/4	2024-T3	.040X4X19	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18481

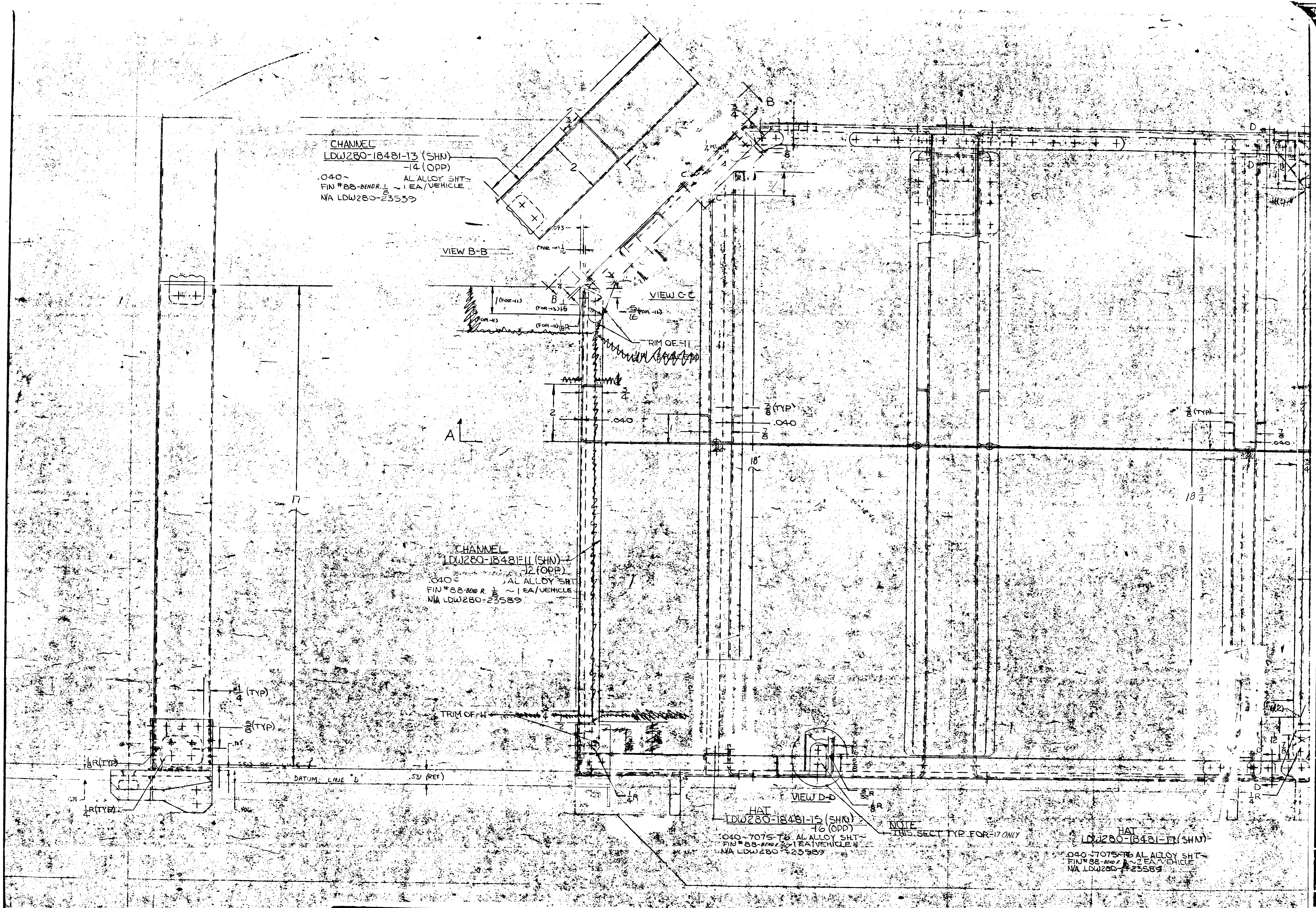
SCALE NONE

SHEET 2.00

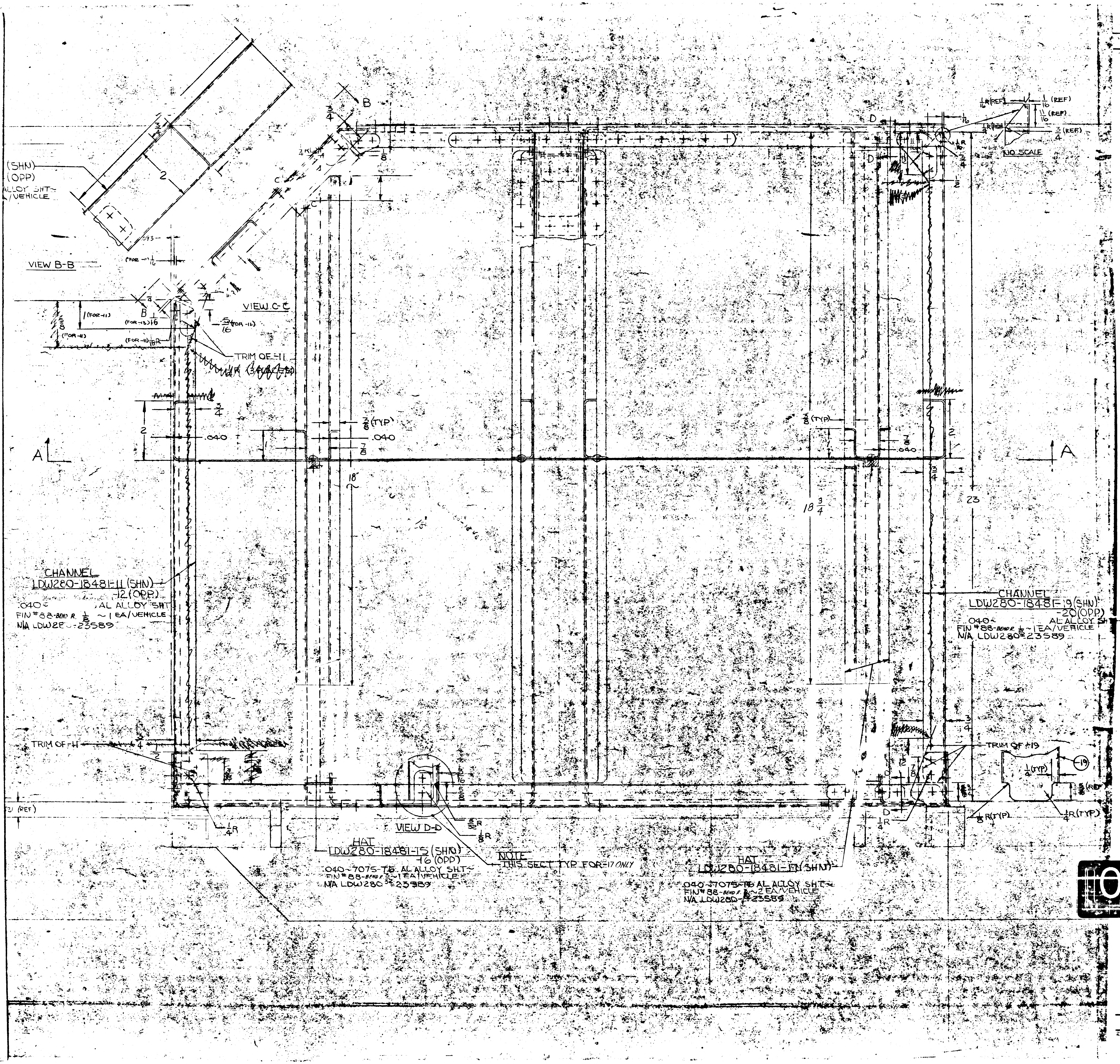
ENG 77.2 7-65

01

NAS 9-1100


CHANNEL
LDW280-18481-13 (SHN)
-14 (OPP)
.040~ AL ALLOY SHT~
FIN #88-BEND R. 1/8 ~ 1 EA/VEHICLE
N/A LDW280-23539
VIEW B-B
B
C
VIEW C-C
TRIM OF -11
3/4
2
.040
7/8
3/8 (TYP)
18
17
18 3/4
A
CHANNEL
LDW280-18481-11 (SHN)
-12 (OPP)
.040~ AL ALLOY SHT
FIN #88-BEND R. 1/8 ~ 1 EA/VEHICLE
N/A LDW280-23589
1/4 (TYP)
3/8 (TYP)
1/8 R (TYP)
1/4 R (TYP)
TRIM OF -11
DATUM LINE "D"
.531 (REF)
1/4 R
VIEW D-D
3/32 R
1/8 R
D
HAT
LDW280-18481-15 (SHN)
-16 (OPP)
.040~7075-T6 AL ALLOY SHT~
FIN #88-BEND R. 3/32 ~ 1 EA/VEHICLE
N/A LDW280-23589
NOTE
THIS SECT TYP FOR -17 ONLY
HAT
LDW280-18481-17 (SHN)
.040~7075-T6 AL ALLOY SHT~
FIN #88-BEND R. 3/32 ~ 2 EA/VEHICLE
N/A LDW280-23589
DATUM LINE "C"

01/02 NAS 9-1100


VIEW B-B
(SHN)
(OPP)
ALLOY SHT~
/VEHICLE
B
C
D
VIEW C-C
TRIM OF-11
NO SCALE
(REF)
A
A
2
.040
3/8 (TYP)
7/8
18
18 3/4
23
CHANNEL
LDW280-18481-11 (SHN)
-12 (OPP)
.040~ AL ALLOY SHT
FIN #88-BEND R. 1/8 ~1 EA/VEHICLE
N/A LDW280-23589
CHANNEL
LDW280-18481-19 (SHN)
-20 (OPP)
.040~ AL ALLOY SHT
FIN #88-BEND R. 1/8 ~1 EA/VEHICLE
N/A LDW280-23589
TRIM OF-11
TRIM OF-19
1/4 (TYP)
19
1/4 R (TYP)
1/8 R (TYP)
VIEW D-D
HAT
LDW280-18481-15 (SHN)
-16 (OPP)
.040~7075-T6 AL ALLOY SHT~
FIN #88-BEND R 3/32~1 EA/VEHICLE
N/A LDW280-23589
NOTE
THIS SECT TYP FOR -17 ONLY
HAT
LDW280-18481-17 (SHN)
.040~7075-T6 AL ALLOY SHT~
FIN #88-BEND R ~2 EA/VEHICLE
N/A LDW280-23589

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

NOTES
1. 1/4" OUTSIDE RADII OPTIONAL
2. NO TOOLING HOLES PERMITTED IN PARTS

LAYOUT RELEASE MAY BE REDRAWN ON PRODUCTION FORMAT

INFORMATION NOT REQD FOR MANUFACTURE IS FOR

02/02

NAS 9-1100

LDW280-18481

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE K	CODE IDENT NO. 26512	LDW280-18481
MODEL OR END ITEM	SCALE -		SHEET 3, 00

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280	EO NO. 1100
CONTROL INFO NO. LC 280B4777	

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11 -13 -15 -18414-17	SEE DWG.	A1
-18455-11		A1
-18479-13 -17 -19 -18479-21		A4
-18480-11 -13 -15 -18480-17		A1
-18481-11 -12 -13 -14 -15 -16 -17 -19 LDW280-18481-20	SEE DWG.	A1

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11 -12 -13 -14 -15 -16 -17 -18 -19 -18482-20	SEE DWG	A1
-18483-11 -13 -14 -15 -17 -18 -18483-19		A2
-18484-11 -12 -13 -18484-15		A1
-18501-17 -19 -20 -13 LDW280-18501-21	SEE DWG	A2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG. 22 (5)
REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST		DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.	GAEC EO RELEASE ② 1C SK 8/19/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		DVT (70)		REVISE DWG ✓ / RECORD EO	REWORK / SCRAP: NOT REQD.

APPROVED BY	JKK			G.H.	NM				
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-1-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1100

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-18482

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	1 EA
PART NO. LDW280-18482-11,-12,-13,-14,-15,-16,-17,-18,-19,-20		GAEC SCH NO. 50	

WORK PKG FUNCTION NO, 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		200	300					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: F

LAST DASH NO. USED: -20

GRUMMAN REL INFO

PRIM NO.: 207 | JK(001) | MP-13-12/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ±1/2°

ORIG DWG AUTH D

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 CCA 586
OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY: G. BELEV

RELIABILITY

LAYOUT BY

CHECKED BY: W. Gourlay

GP LEADER: Thorjusen 12-1-67

VDI: 12/1/67

STRUCT: 12/12/67

STRUCT: 12/1

WGTS

PROJ ENGR: Busatin 12/1/67

REL GROUP: 12/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC EQUIPMENT
SIMULATOR

SIZE: B

CODE IDENT NO.: 26512

LDW280-18482

SCALE: NONE

SHEET 1.00 OF 3

CDR 12-4-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18482-20	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.050 X 3 X 22	T42	88	
	-19			ANGLE		QQ-A-250/4	2024	.050 X 3 X 22	T42		
	-18			CHANNEL		QQ-A-250/4	2024	.050 X 3 X 21	T42		
	-17			CHANNEL		QQ-A-250/4	2024	.050 X 3 X 21	T42		
	-16			ZEE		QQ-A-250/4	2024	.050 X 5 X 22	T42		
	-15			ZEE		QQ-A-250/4	2024	.050 X 5 X 22	T42		
	-14			CHANNEL		QQ-A-250/12	7075	.080 X 4 X 22	T6		
	-13			CHANNEL		QQ-A-250/12	7075	.080 X 4 X 22	T6		
	-12			CHANNEL		QQ-A-250/12	7075	.050 X 4 X 27	T6		
	LDW280-18482-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050 X 4 X 27	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18482

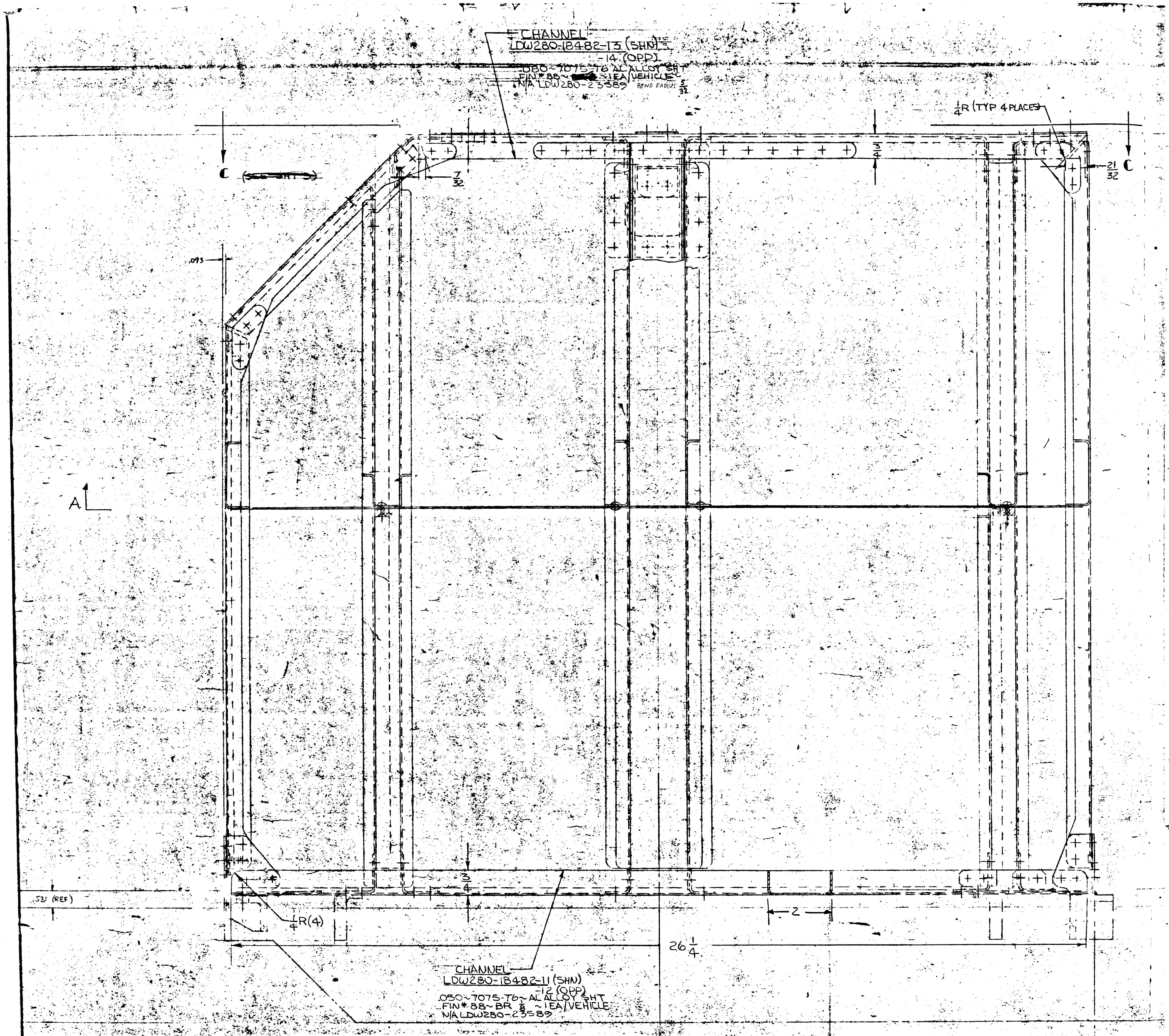
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

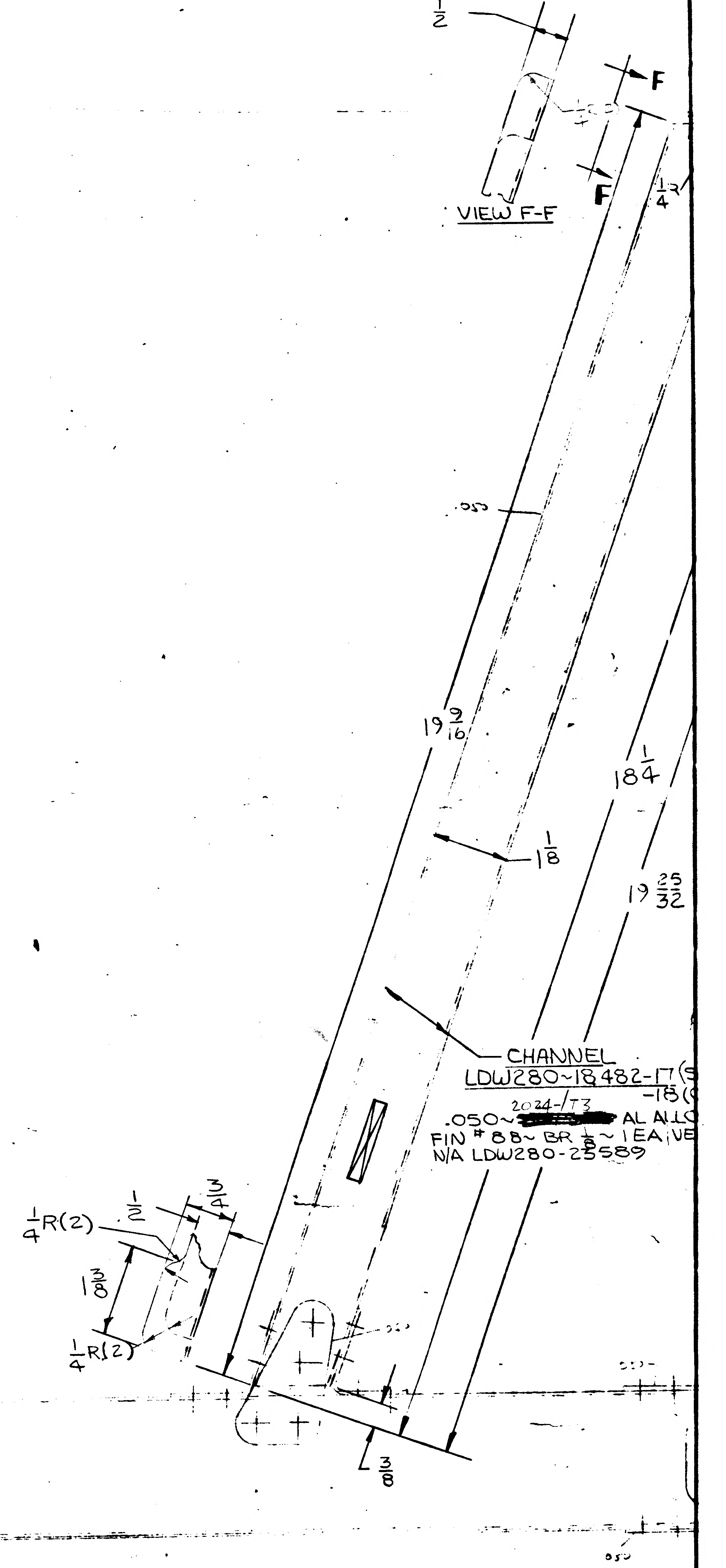
01

NAS 9-1100


CHANNEL
LDW280-18482-13 (SHN)
-14 (OPP)
.080~7075-T6 AL ALLOY SHT
FIN # 88~ [redacted] ~1EA/VEHICLE
N/A LDW280-23589
BEND RADIUS 5/32
1/4 R (TYP 4 PLACES)
C
C
7/32
3/4
21/32
.093
A
.531 (REF)
3/4
1/4 R(4)
2
26 1/4
CHANNEL
LDW280-18482-11 (SHN)
-12 (OPP)
.050~7075-T6~AL ALLOY SHT
FIN # 88~BR 1/8 ~1EA/VEHICLE
N/A LDW280-23589

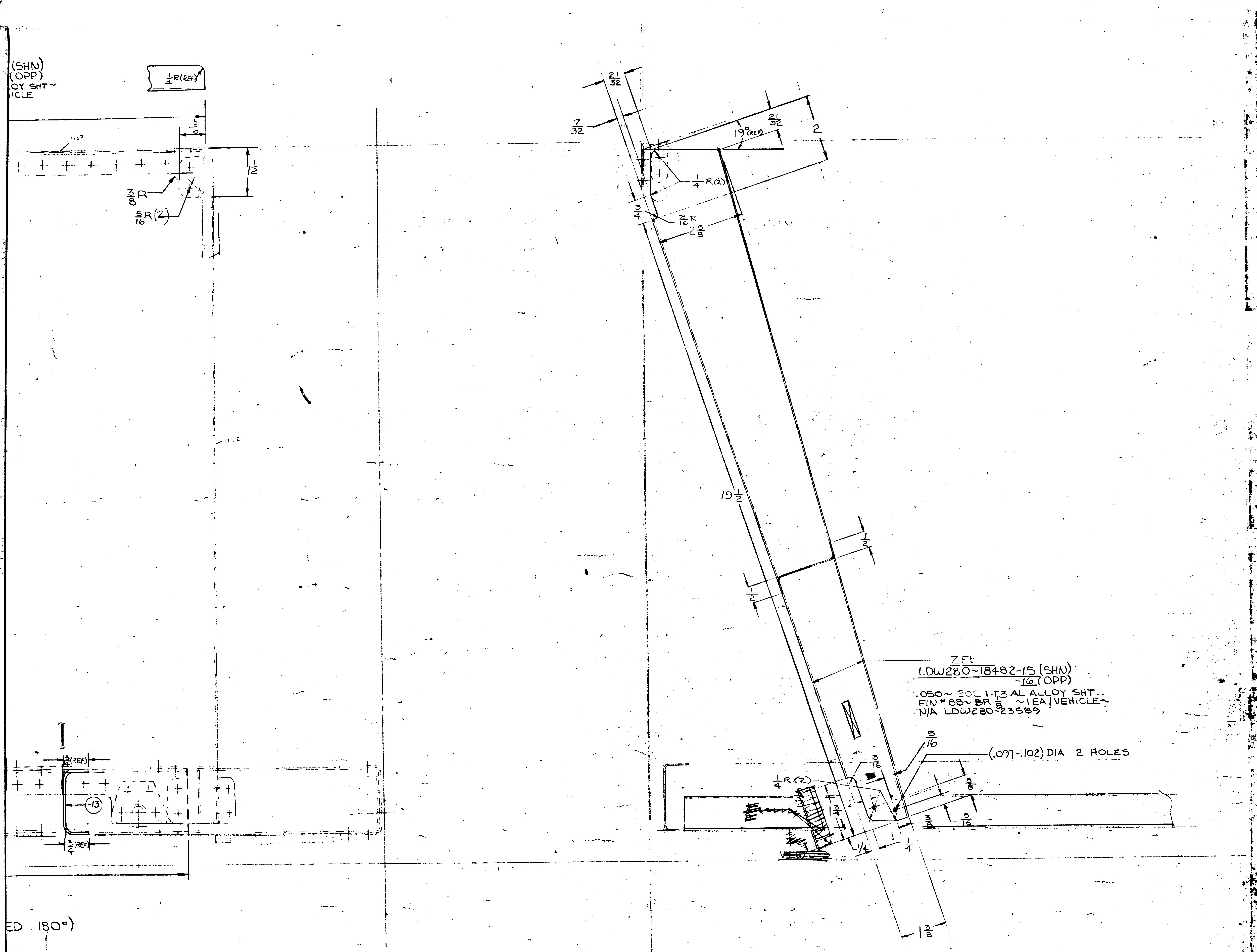
01/03

NAS 9-1100


1/2
F
F
VIEW F-F
1 1/4
19 9/16
18 1/4
1 1/8
19 25/32
CHANNEL
LDW280~18482-17
-18
2024-T3
.050~ [redacted] AL ALLO
FIN # 88~ BR 1/8 ~1EA/VE
N/A LDW280-23589
1/4 R(2)
1/2
3/4
1 3/8
1/4 R(2)
3/8

ANGLE
LDW280~18482-19 (SHN)
-20 (OPP)
.050~ 2024-T3 AL ALLOY SHT~
FIN #88~BR 1/8~1 EA/VEHICLE
N/A LDW280~23589
1/4 R(REF)
1/4 R(REF)
21
3/16
1/2
1/4
3/4
1/4 R(3)
3/8 R
5/16 R(2)
.050
1/2
3/4
F
F
1/4 R(2)
1/4 R
VIEW F-F
.050
19 9/16
18 1/4
1 1/8
19 25/32
CHANNEL
LDW280~18482-17 (SHN)
-18 (OPP)
.050~[redacted] 2024-T3 AL ALLOY SHT
FIN #88~BR 1/8~1 EA/VEHICLE
N/A LDW280-25589
3/8
.050
.050
.080
2
-13
1/4 (REF)
3/4 (REF)
LDW280-18482-13 (REF)
21 5/16
21/32
7/32
VIEW G-G (ROTATED 180°)

02/03 NAS 9-1100



ZEE
LDW280~18482-15 (SHN)
-16 (OPP)
.050~ 2024-T3 AL ALLOY SHT
FIN*88~ BR 1/8 ~1EA/VEHICLE~
N/A LDW280~23589

(.097-.102) DIA 2 HOLES

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	✓
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	✓
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

PRINTING INFO ONLY

LDW280-18482

NOTES:
1. OUTSIDE RADIUS ON CORNERS OPTIONAL

LAYOUT RELEASE–MAY BE REDRAWN ON PRODUCTION FORMAT.

LDW280-18482

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE K	CODE IDENT NO. 26512	LDW280-18482
MODEL OR END ITEM	SCALE FULL		SHEET 3 OF

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1100

CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11	SEE DWG.	A1
-13		
-15		
-18414-17		
-18455-11		A1
-18479-13		A4
-17		
-19		
-18479-21		
-18480-11		A1
-13		
-15		
-18480-17		
-18481-11		A1
-12		
-13		
-14		
-15		
-16		
-17		
-19		
LDW280-18481-20	SEE DWG.	

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11	SEE DWG	A1
-12		
-13		
-14		
-15		
-16		
-17		
-18		
-19		
-18482-20		
-18483-11		A2
-13		
-14		
-15		
-17		
-18		
-18483-19		
-18484-11		A1
-12		
-13		
-18484-15		
-18501-17		A2
-19		
-20		
-13		
LDW280-18501-21	SEE DWG	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1433 CCA 586 PKG. 22 (5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.

GAEC 1C EO RELEASE: SK 8/19/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				G.H.	NM			
DATE	7/17/68			7/26/68	7/31/68		7/31/68	8-1968

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO. LEO280

EO NO. 1100

7-31-68 ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

LDW280-18483

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA3 (13)	1 EA

LDW280-18483-17 & -18

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	6 EA
PART NO. LDW280-18483-13 & -14			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	4
PART NO. LDW280-18483 -15			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2 EA
PART NO. LDW280-18483-11 & -19		50	

WORK PACKAGE FUNCTION #111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
LAST DASH NO. USED	-19	PRIM NO.	JK(001)		
		207	mP-16-	12/8/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

CCA 586 LCD 1433
OK

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II (5)

DRAWN BY	DR Beitler 11/28/67	STRUCT	12/7/67
LAYOUT BY	A.F. Marzella 11-1-67	STRUCT	12/7/67
CHECKED BY	D.FASS 12-7-67	WEIGHTS	
GP LEADER	Thorjusen 12-2-67		
VEH. DES. INT.	12/2/67		
		PROJ ENGR	12/2/67
		REL GROUP	12/8/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS - OUTBOARD
DESCENT STAGE-APOLLO LUNAR
SCIENTIFIC EQUIP. PACKAGE SIMULATOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18483
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-4-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18483-19	E		CLIP	AL ALLOY SHT	QQ-A-250/12	7075	.063x2x4	T6	88	
	LDW280-18483-18	E		CLIP	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x3x3	NONE	88	
	LDW280-18483-17	E		CLIP	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x3x3	NONE	88	
	↑ -15	↑		CLIP	↑	QQ-A-250/12	7075	.050x2x2	T6	↑	
	-14			CLIP		QQ-A-250/12	7075	.050x2x3	T6		
	↓ -13	↓		CLIP	↓	QQ-A-250/12	7075	.050x2x3	T6	↓	
	LDW280-18483-11	E		CLIP	AL ALLOY SHT	QQ-A-250/4	2024-T3	.050x3x3	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18483

SCALE NONE

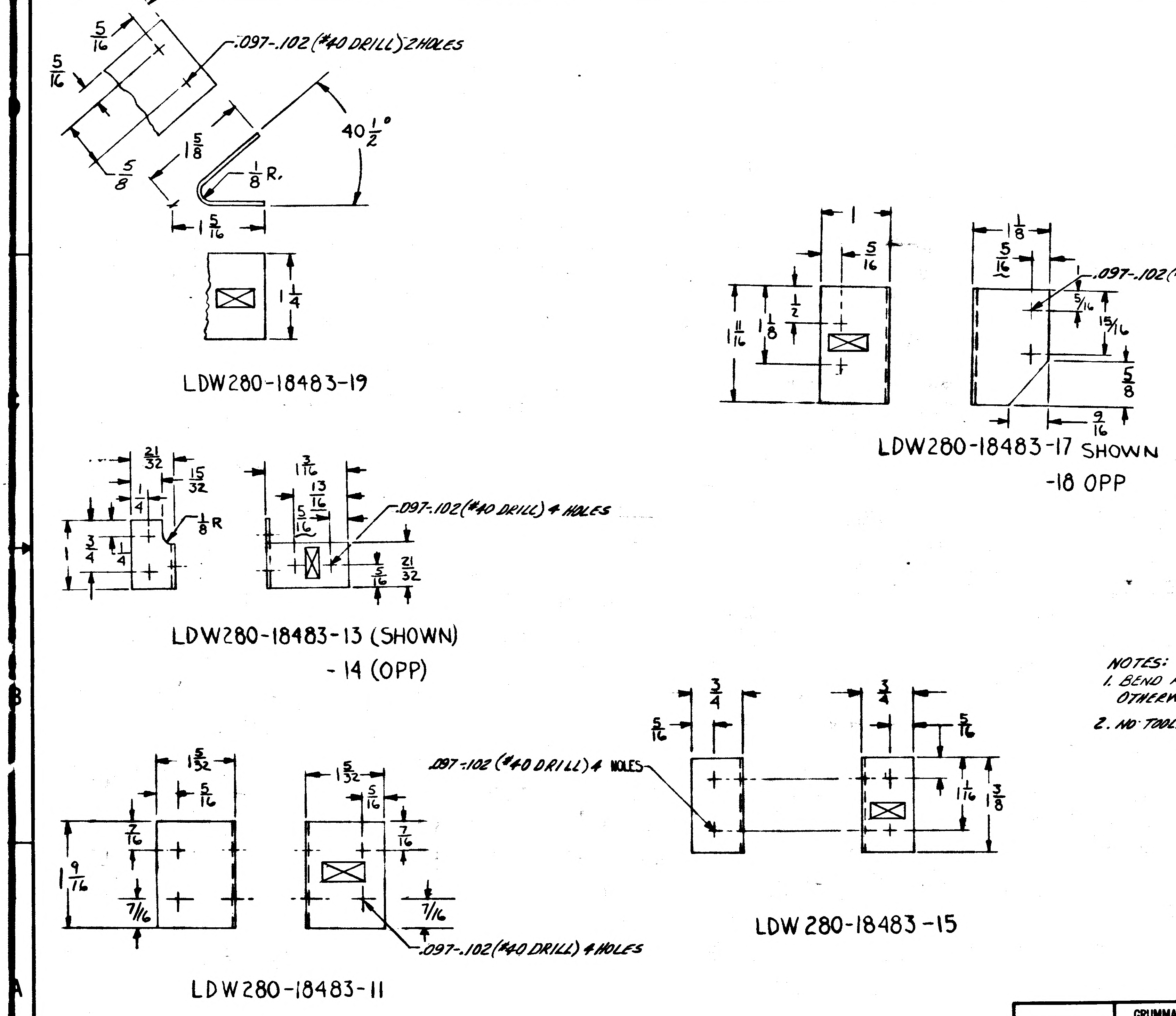
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

MANUFACTURING OPERATIONS	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓



4
3
2
1
.097-.102 (#40 DRILL) 2 HOLES
40 1/2°
1/8 R.
1 5/8
5/16
5/8
1 5/16
1 1/4
LDW280-18483-19
.097-.102 (#40 DRILL) 4 HOLES
1 11/16
1 1/8
1/2
5/16
1
1 1/8
15/16
5/8
9/16
LDW280-18483-17 SHOWN
-18 OPP
21/32
15/32
1/4
1/8 R
3/4
1 3/16
13/16
.097-.102 (#40 DRILL) 4 HOLES
LDW280-18483-13 (SHOWN)
- 14 (OPP)
1 5/32
5/16
7/16
1 9/16
.097-.102 (#40 DRILL) 4 HOLES
LDW280-18483-11
.097-.102 (#40 DRILL) 4 HOLES
3/4
1 1/16
1 3/8
LDW 280-18483 -15

NOTES:
1. BEND R. $\frac{3}{32}$ ON ALL PART UNLESS OTHERWISE SPECIFIED.
2. NO TOOLING HOLES PERMITTED IN PARTS.

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18483	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

01

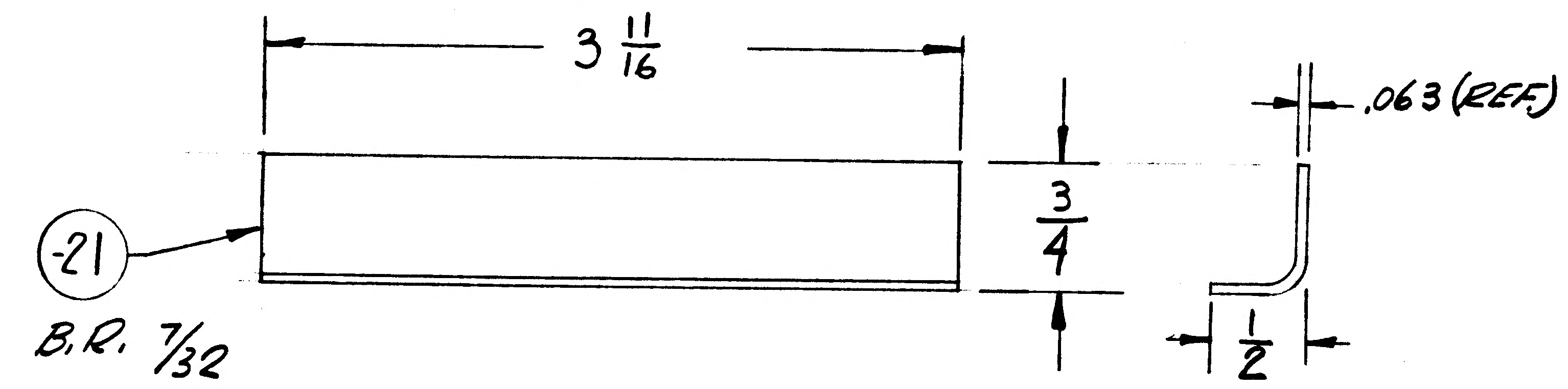
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18483 | EO NO. A1
CONTROL INFO. NO. LDW 280B4776

IN F/D & B/M: ADD -21, STIFFENER, AL. ALLOY SH., 2024-T3, PROCESS-NONE, FINISH 76 PER LSP14-9010 (2) REQD/MOD.
N/A LDW 280-23589



DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 1433 CCA 586 PKG 22

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM; REQD FOR VIB. QUAL TEST

DESCRIPTION OF EO: ADDED -21.

GAEC EO RELEASE: 8/5/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					NM			
DATE	7/27/68			7/26/68	7/31/68		8/1/68	8-5-68

PRIORITY: C

DRAWING TITLE: CLIPS ~ OUTB'D ~ D/S ~ APOLLO LUNAR SCIENTIFIC EQUIP. PACKAGE SIMULATOR

DRAWING NO. LDW280-18483 | EO NO. A1

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11	SEE DWG.	A1
-13		
-15		
-18414-17		
-18455-11		A1
-18479-13		A4
-17		
-19		
-18479-21		
-18480-11		A1
-13		
-15		
-18480-17		
-18481-11		A1
-12		
-13		
-14		
-15		
-16		
-17		
-19		
LDW280-18481-20	SEE DWG.	

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11	SEE DWG	A1
-12		
-13		
-14		
-15		
-16		
-17		
-18		
-19		
-18482-20		
-18483-11		A2
-13		
-14		
-15		
-17		
-18		
-18483-19		
-18484-11		A1
-12		
-13		
-18484-15		
-18501-17		A2
-19		
-20		
-13		
LDW280-18501-21	SEE DWG	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1433 CCA 586 PKG. 22 (5)
REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST	DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.	GAEC EO RELEASE: SK 8/1/68	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
LM		DVT (70)		REVISE DWG ✓ / RECORD EO	NOT REQD. (REWORK / SCRAP)	C	SEE DWG.	LEO 280	1100

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	COMP
DATE	7/27/68 VDI			GH. 7/26/68	7/31/68		7/31/68	8-1-68

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-18484

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	4
PART NO. LDW280-18484-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2 EA
PART NO. LDW280-18484-11, -12, & -13		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO		
		PRIM NO.	YC(001)	
LAST DASH NO. USED	-15	207	MP-16-12/8/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ±1/2°

D ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1433 CCA 586	

OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (5)

DRAWN BY	W. LEIFER		
LAYOUT BY	J. Mangelli 11-30-67		
CHECKED BY	D. FASS 12-7-67		
GP LEADER	Thoyinsen 11-30-67		
VEH DES INT	J. Stralowsch 11/30/67		
STRUCT	JS N/M 12/6/67	PROJ ENGR	J Pusateri 11/30/67
STRUCT	TEB 12/7/67	REL GROUP	J Ferd 12/8/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE-SCIENTIFIC EQUIP.
MASS SIMULATOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18484
SCALE	NONE	SHEET 1.00 OF 3

CDR 12-4-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE •	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18484 -15	E	CLIP	AL ALLOY SH.	QQ-A-250/12	7075	.090 X 2 X 2	T6	88	
		-13						.050x 2x 4			
		-12						.090x2x4			
		LDW280-18484 -11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.090x 2x 4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18484

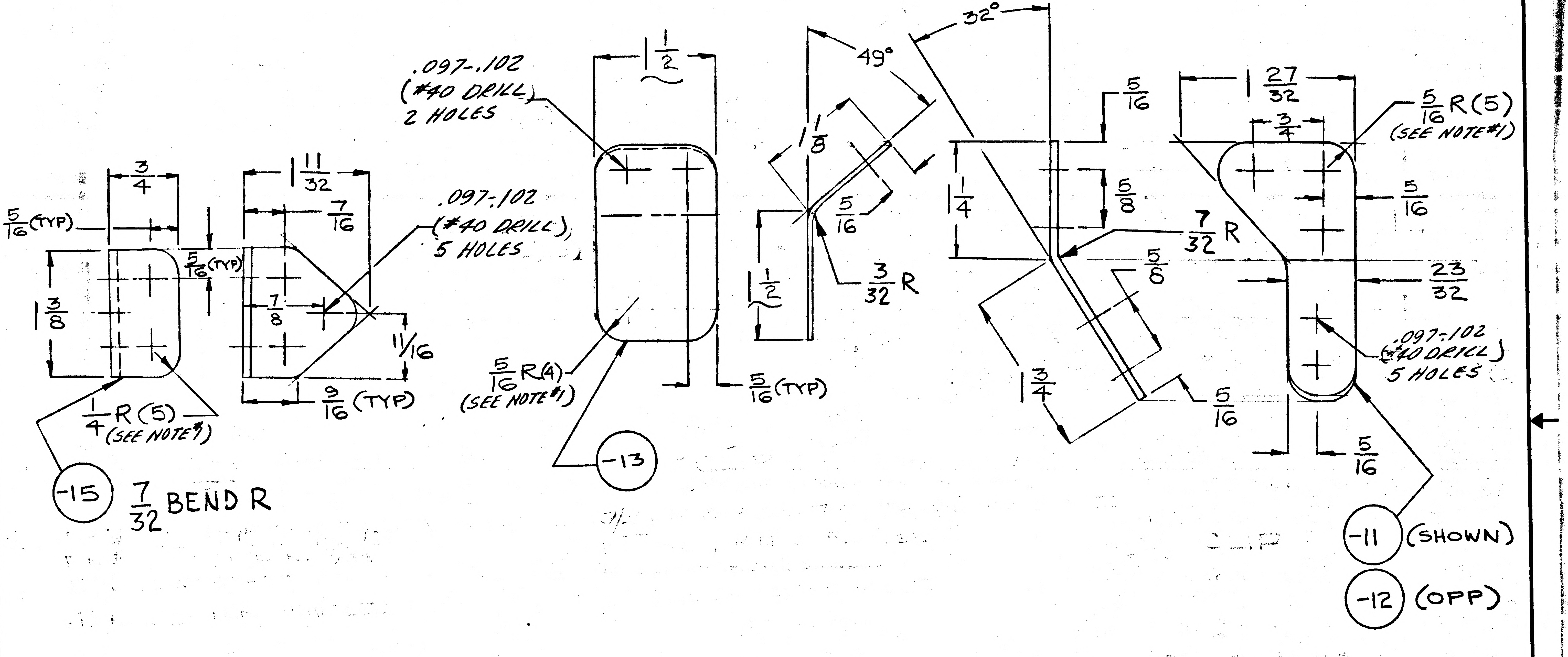
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


.097-.102
(#40 DRILL)
2 HOLES
.097-.102
(#40 DRILL)
5 HOLES
5/16 (TYP)
3/4
1 11/32
7/16
5/16 (TYP)
1 3/8
7/8
11/16
1/4 R (5) (SEE NOTE #1)
9/16 (TYP)
-15
7/32 BEND R
1 1/2
5/16 R (4) (SEE NOTE #1)
5/16 (TYP)
-13
49°
32°
1 1/8
5/16
1 1/2
3/32 R
1 1/4
5/16
5/8
7/32 R
5/8
1 3/4
5/16
1 27/32
3/4
5/16 R (5) (SEE NOTE #1)
5/16
23/32
.097-.102
(#40 DRILL)
5 HOLES
5/16
-11 (SHOWN)
-12 (OPP)

NOTES:
1. OUTSIDE RADIUS ON
ALL PARTS OPTIONAL
2. NO TOOLING HOLES PERMITTED
IN PARTS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18484
SCALE FULL		SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) . EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11 -13 -15 -18414-17	SEE DWG.	A1
-18455-11		A1
-18479-13 -17 -19 -18479-21		A4
-18480-11 -13 -15 -18480-17		A1
-18481-11 -12 -13 -14 -15 -16 -17 -19 LDW280-18481-20	SEE DWG.	A1

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11 -12 -13 -14 -15 -16 -17 -18 -19 -18482-20	SEE DWG	A1
-18483-11 -13 -14 -15 -17 -18 -18483-19		A2
-18484-11 -12 -13 -18484-15		A1
-18501-17 -19 -20 -13 LDW280-18501-21	SEE DWG	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1433 CCA 586 PKG. 22 (5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DUT (70) REQMTS.

GAEC EO RELEASE: SK 8/19/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DUT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				G.H.	NM			
DATE	7/17/68			7/26/68	7/31/68		7/31/68	8-7-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1100

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-18486 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	TM-5/R(65)	1 EA
LM	LDW280-54665	DVT(70)	1 EA
PART NO. LDW280-18486-13&-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-58665	LM-15(45)	1 EA
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
	LDW280-58665	LM-8(38)	1
	LDW280-56665	LM-7(37)	1
LM	LDW280-56665	LM-6(36)	1
LFM 140	LDW280-54665	LM-5(35)	1
LFM 140	LDW280-54665	LM-4(34)	1 EA
PART NO. LDW280-18486-23&-25		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	TM-5/R(65)	1 EA
LM	LDW280-54665	D.V.T.(70)	1 EA
	LDW280-58665	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
	LDW280-58665	LM-8(38)	1 EA
	LDW280-56665	LM-7(37)	1 EA
	LDW280-56665	LM-6(36)	1 EA
	LDW280-54665	LM-5(35)	1 EA
LM	LDW280-54665	LM-4(34)	1 EA
PART NO. LDW280-18486-11, -12, -19&-21		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	B	B	B	B					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -25

GRUMMAN REL INFO B

PRIM NO.	JJC(001)		
207	ME-16	B-4/19/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES ±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA 586)

OK

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	P.R.B. SCHWETER 4/5/68	RELIABILITY	
LAYOUT BY	J. LANG	Thermo	6-11-68
CHECKED BY	Bor. Maggiacomo 4-5-68		
GRP. LEADER	4-10-68		
VEH DES INT	4/11/68		
STRUCTURES	4/11/68	PROJ ENGR	
STRUCTURES	4/10/68	REL GROUP	Marsh
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ QUAD II ~ THERMAL
DOOR ~ JAMB SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18486	B
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR 061468 REV B

CDR 4-12-68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO	SHEET NO	ZONE	GRUMMAN INFO ONLY	SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	 SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	100,1.10				✓		LEO 280-964 LCD 3075 CCA 586	ON -11,-12,-13,-15 & -17, ADDED TM-5/R(65) REQ ADDED SH 1.10	TM5/R	NOT	REQD	GIORDANO 6-6-68		
	2	100,200 300				✓		LCD 1433 LCD 3075 CCA 586	ADDED -19	LM-4 THRU LM-15, DVT(70) TM-5/R					
B	1	1.00,1.10,2.00, 3.00		LFM 140					INC EO-B1	LM-4 THRU LM-15			N. OESTERHELD 4-2-69		
	2	1.00, 2.00, 3.00							INC EO-B2	LM-4 THRU LM-15 DVT(70), TM5/R(65)					
	3	1.00,2.00, 3.00		LFM 140					INC EO-B3	LM-4 THRU LM-15					
	4	1.00							INC LEO280-1171	LM-6 THRU LM-15					
	5	1.00,2.00,3.00		LFM 140					INC EO-B5	LM-4 THRU LM-15	N.D.				
	6	1.00							INC. LEO 280-1287	LM-8 THRU LM-15					
	7	1.00				✓		LCD 3179 CCA 1276 CCPA 0623	REF LEO 280-1171 (B4): -27 & -29 SHOULD BE -23 & -25.	LM-6 THRU LM-15	NOT	REQD			E. Z 4-2-...

DWG APPROVED

LTR	GROUP LDR		STRUCT	STRUCT
A				
B				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18486	B

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18486-25	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.062 X 2 X 2	CM	88	
		-23	E	PLATE		QQ-A-250/12	7075-T6	.062 X 2 X 2	CM		
		-19	E	DOUBLER		QQ-A-250/4	2024-T3	.032 × 2 × 6	NONE		
		-21		CHANNEL		QQ-A-250/12	7075	.024 × 3 × 10	T6		
		-15		PLATE			7075-T6	.062 × 2 × 2	NONE		
		-13		PLATE			7075-T6	.062 × 2 × 2	NONE		
		-12		CHANNEL			7075	.024 × 3 × 10	T6		
		LDW280-18486-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.024 × 3 × 10	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM-MILL	LSP14-26100
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

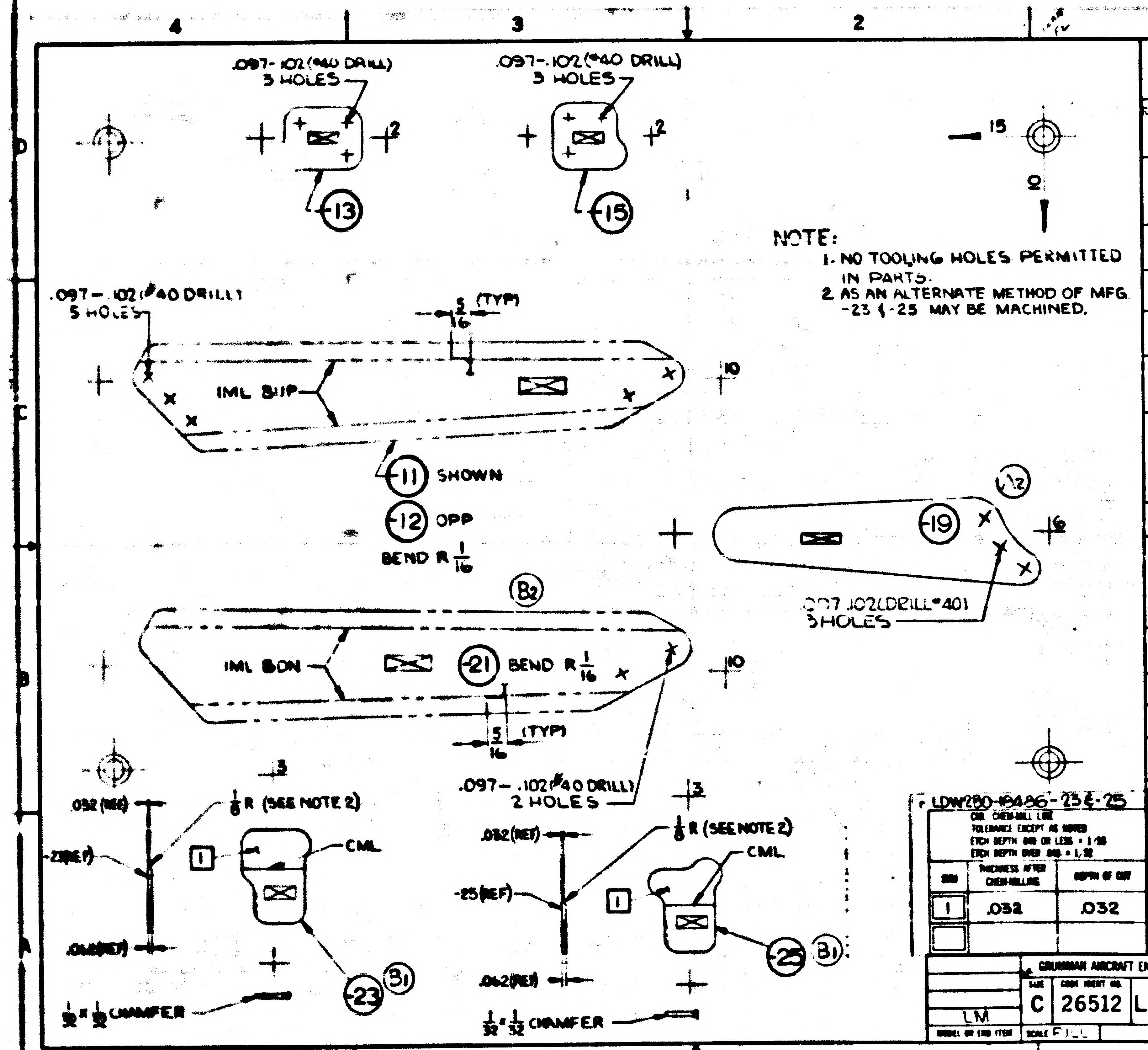
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18486	B
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100


4
3
2
1
D
C
B
A
.097-.102(#40 DRILL)
3 HOLES
.097-.102(#40 DRILL)
3 HOLES
2
2
-13
-15
15
10
.097-.102(#40 DRILL)
5 HOLES
5/16 (TYP)
IML BUP
10
-11 SHOWN
-12 OPP
BEND R 1/16
-19
B2
16
.097-.102(DRILL #40)
3 HOLES
B2
IML BDN
-21
BEND R 1/16
10
5/16 (TYP)
.097-.102(#40 DRILL)
2 HOLES
3
.032 (REF)
1/8 R (SEE NOTE 2)
-23(REF)
CML
1
.062(REF)
-23
B1
1/32 x 1/32 CHAMFER
3
.032(REF)
1/8 R (SEE NOTE 2)
CML
-25(REF)
1
-25
B1
.062(REF)
1/32 x 1/32 CHAMFER

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. AS AN ALTERNATE METHOD OF MFG. -23 & -25 MAY BE MACHINED.

LDW280-18486-23 & -25

CML CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS ± 1/16
ETCH DEPTH OVER .040 ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.032	.032

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
C	26512	LDW280-18486	B

LM
MODEL OR END ITEM
SCALE FULL
SHEET 3.OC

FOR PHOTO REPRODUCTION

K2

LDW280-18486 B

01, 1 1 1

NAS 9-1100

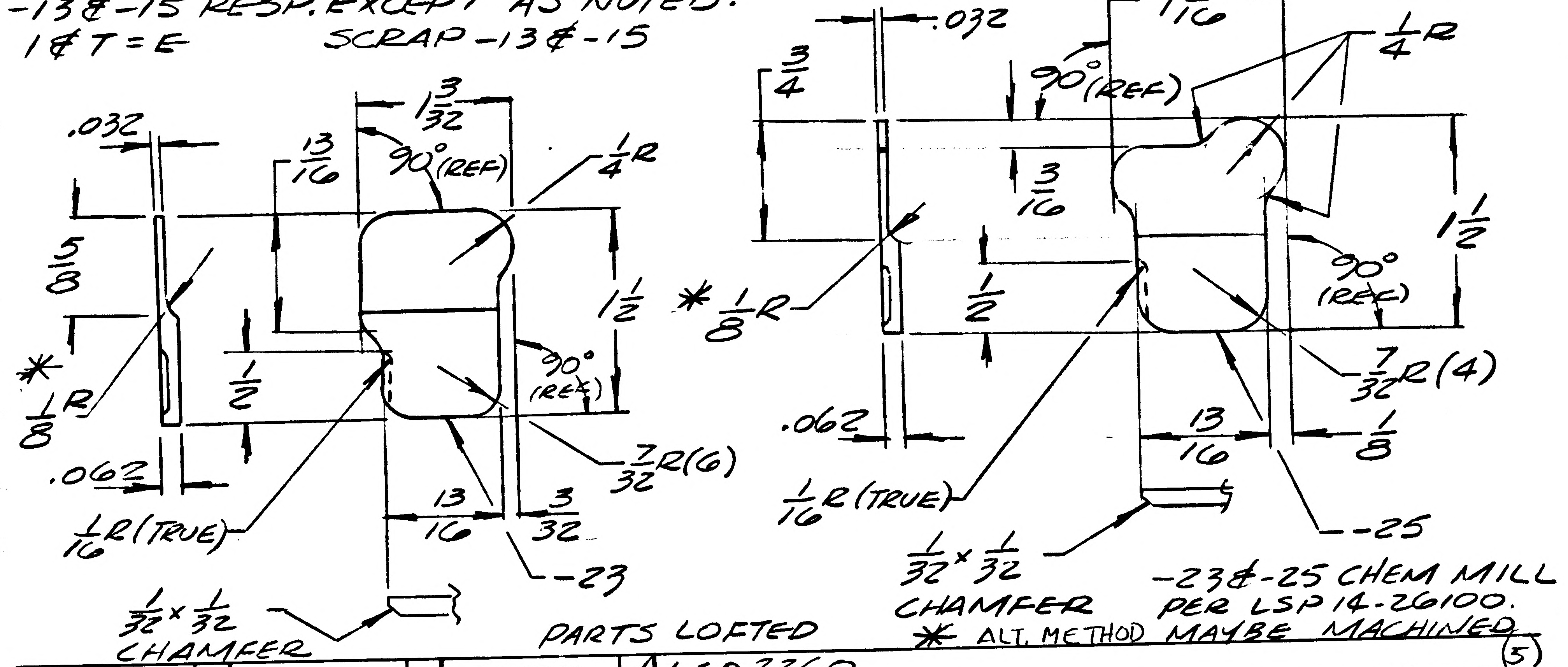
(ORIGINALLY RELEASED AS A1 IN ERROR) 2W.

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

E 1 REV 3-65

DWG. NO. LDW280-18486 | EO NO. B1
CONTROL INFO NO. LM-S-20381

IN FLD, B/M, & MOD/BLK: ADD -23 & -25 IDENT. TO -13 & -15 RESP. EXCEPT AS NOTED:
1 & T = E SCRAP -13 & -15



.032
5/8
* 1/8 R
.062
1/16 R (TRUE)
1/32 × 1/32 CHAMFER
13/16
1 3/32
90° (REF)
1/4 R
1 1/2
1/2
90° (REF)
7/32 R (6)
13/16
3/32
-23
.032
3/4
3/16
* 1/8 R
1/2
.062
1/16 R (TRUE)
1/32 × 1/32 CHAMFER
1 3/16
90° (REF)
1/4 R
1 1/2
90° (REF)
7/32 R (4)
13/16
1/8
-25

PARTS LOFTED

-23 & -25 CHEM MILL PER LSP 14-26100.
* ALT. METHOD MAYBE MACHINED (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCC 2360

REASON FOR EO: LONGER PARTS REQ'D TO PROVIDE E.D. ON INSTL

DESCRIPTION OF EO: IN FLD, B/M, & MOD/BLK ADDED -23 & -25 REMOVED -13 & -15

GAEC EO RELEASE C — JK — 05 025

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	~~PROCURING ACTIVITY NO.~~ E1	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	REWORK	-13 -15 SCRAP	DATE	7/24/68 S/CAT	8/3/68 SUPPORT VD1	RELIAB. GROUP	7-24-68 GROUP LEADER	7-24-68 STRESS GROUP	7/24/68 LIAISON ENGRG	7/24/68 PROJ ENGRG Grumman
LM	LEM140	LM4 (34) &	LM5 (45)	PRIORITY C	DRAWING TITLE: CHANNEL, O/S-QUAD II - THERMAL DOOR JAMB SUPPORT							DRAWING NO. LDW280-18486			EO NO. B1
		LM6 (36)	THRU												
		LM15 (45)													

ISSUED BY LIAISON M.O. REYES X86755 SECTION VD1 / P. THORJUSEN GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65 8327

DWG. NO. LDW280-18486
EO NO. B2
CONTROL INFO NO. LM-5-20370

IN F/D, B/M & MOD BLK

CREATE -21 SAME AS -17 EXCEPT

"IML B UP" S/B "IML B DOWN"

REMOVE -17

(-21 REPLACES -17)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA 586 (E)

REASON FOR EO: DETAIL PART BEND REQMTS INCORRECT

DESCRIPTION OF EO: IN F/D, B/M & MOD BLK CREATED -21 REMOVED -17

GAEC EO RELEASE: C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	DVT (70)
		THRU	TM-5/R (65)
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—				
DATE	8/7/68			—	8-3-68	8-2-68	8/7/68	8-8-68

PRIORITY: C

DRAWING TITLE: CHANNEL D/S - QUAD II - THERMAL DOOR - JAMB SUPPORT

DRAWING NO. LDW280-18486

EO NO. B2

ISSUED BY LIAISON X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

KP

ENG 32.1 REV 3-65

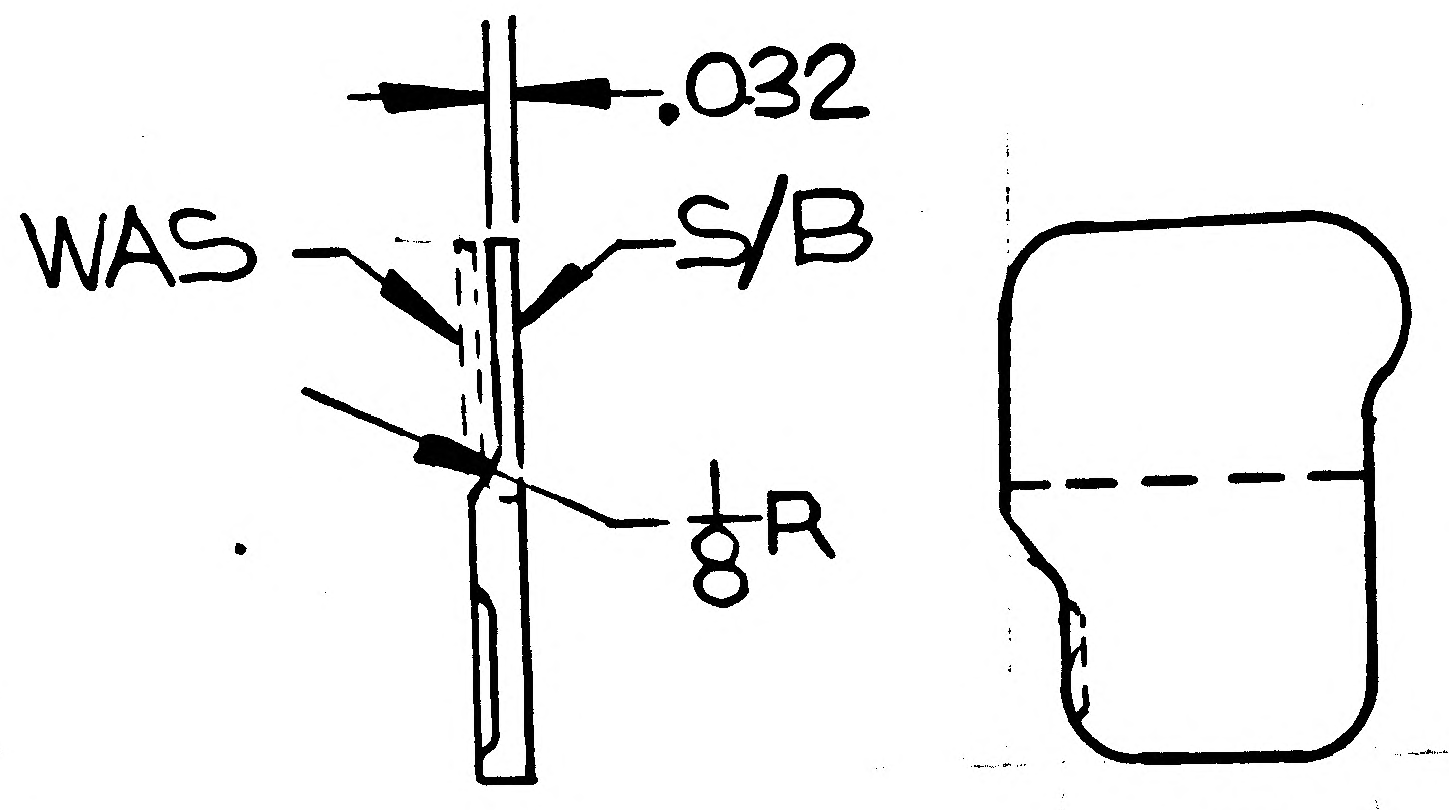
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

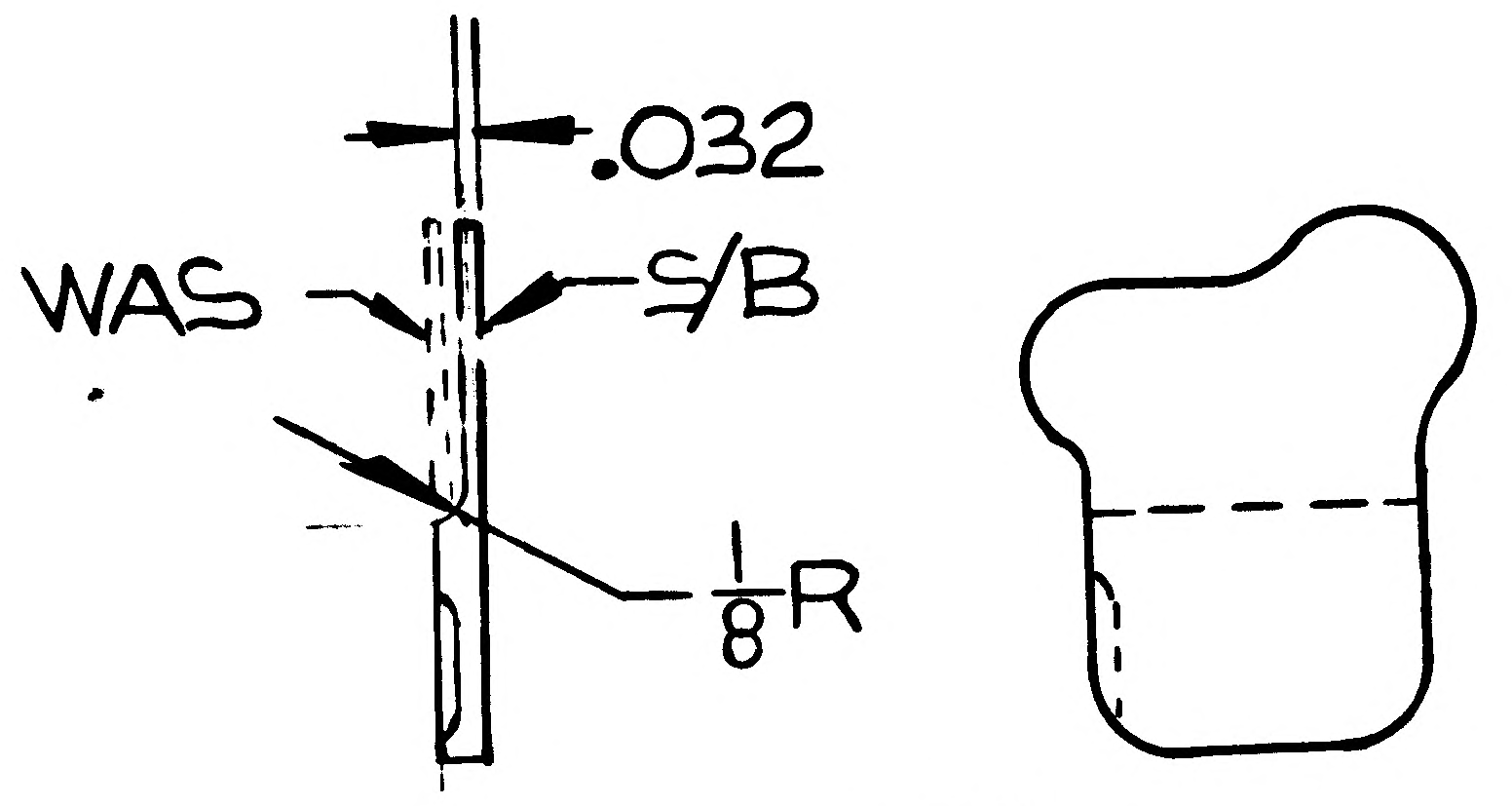
DWG NO. LDW280-18486 | EO NO. B3
CONTROL INFO NO. LM-2-5008

IN B/M & F/D & MOD/BLK ADD
-27 & -29 IDENTICAL TO -23 & -25
EXCEPT AS NOTED
SCRAP -23 & -25

REF EO B1



-27



-29

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360

(2)

REASON FOR EO: TO PROVIDE PROPER STEP & SUPPT ON INSTL

DESCRIPTION OF EO: ADDED -27 & -29 REMOVED -23 & -25

GAEC EO RELEASE: JK

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓			-23 -25	DATE	10/31/68			—	J.M. 10-11-68	10/11/68	10/31/68	10-11-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOV~~ C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LFM140	LM-4 (34) &	LM-5 (45)
		LM-6 (36)	THRU
		LM-15 (45)	

PRIORITY: C

DRAWING TITLE: CHANNEL D/S-QUAD II THERMAL DOOR

DRAWING NO.: LDW280-18486

EO NO.: B3

ISSUED BY LIAISON John J. Blasp X3604 SECTION VDI. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1171
CONTROL INFO NO. LDW280 B5608

ON FOLLOWING PART NO. REVISE N/A. EFFECTIVITY LM-6(36) THRU LM-15(45)

	CHG LTR	* PART NO	REVISE N/A TO	WAS
✓	A8	LDW280-18110-11 & -15	LDW280-56665	LDW280-54665
✓	A2	-18459-11, -12, -13 -15, -16, -17 -19		
✓	B4	-18486-11, -12-19, -21, -27, -29		
	A6	-18488-11, -12, -15 -17, -25, -27 -28, -31, -32 -33		
	A4	LDW280-54674-1 & 3	LDW280-56665	LDW280-54665

* FOR TITLE SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3179 PKG9 ECP A062R CCA 1278

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATE

DESCRIPTION OF EO: FOR * REVISED N/A TO LDW280-56665 (WAS) LDW280-54665 EFF LM-6(36) THRU LM-15(45)

GAEC Ⓡ EO RELEASE: C JK 10/2?/68

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK ~~SCRAP~~

	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CCF
APPROVED BY		N.R.						
DATE	10/18/68	10/18/68		10/17/68	10/18/68		10/18/68	10-22-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1171

ISSUED BY: CDR 110168 TORRACO PN/ THORJUSEN X 1153
SECTION: VDI
GROUP NO. 335
PL 25

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NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1287
CONTROL INFO NO. LDW280B7091

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15 (45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHANGE LETTER
LDW280-18110	-11&-15	LDW280-56665	LDW280-58665	A9
-18459	-11,-12,-13,-15,-16,-17&-19	-56665	-58665	A3
-18486	-11,-12,-19,-21,-23&-25	-56665	-58665	B6
-18488	-11,-12,-15,-17,-25,-27,-28,-31,-32&-33	-56665	-58665	A7
-18661	-11	-56648	-58648	A2
-54596	-1	-56599	-58599	A8
-54602	-1-1	-56648	-58648	B6
-54674	-1&-3	-56665	58665	A5
-54739	-1-1&-3-1	-56665	-58665	A9
-54742	-41-1&-51	-56665	-58665	B3
-56601	-1	-56599	-58599	A2
-56767	-1,-3&-5	-56648	-58648	A2
LDW280-56804	-1	LDW280-56815	LDW280-58815	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: 2/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

	V.D.I.	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		MMR						
DATE	2/13/69	2/17/69		2/12/69	2/19/69		2/17/69	2-19-69

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1287

CDR030369
ISSUED BY W. KAY x87222/D SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: JK 4/1

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	4/1/69			4-2-69	4/1/69		4/4/69	4/4/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1358

052869 ISSUED BY: MEVORAH / THORIUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280
EO NO/736
CONTROL INFO NO. LDW280B8725

IN MOD. BLK. FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME. EFF: LM-10 (40) THRU LM-14 (44)

DRAWING NUMBER *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR.
LDW280-56806-1	LDW280-60817	LDW280-58817	SEE DWG	A3
-54739-1-2 & -3-2	-60665	-58665		B3
-54742-41-3	-60665	-58665		B6
-56767-5	-60648	-58648		A4
-56601-1	-60599	-58599		A4
-18110-11 & -15	-60665	-58665		B3
-18459-11, -12, -13, -15, -16, -17 & -19	-60665	-58665		A6
-18486-11, -12, -19, -21, -23 & -25	-60665	-58665		C2
LDW280-18488-11, -12, -15, -17, -25, -27, -28, -31, -32 & -33	LDW280-60665	LDW280-58665	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3994 PKG92

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A ** (WAS) ***

(5) GAEC EO RELEASE: VK 10/23/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	—	10/21/69		10-20-69	10/21/69		10/22/69	10/23/69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1736

CDR110369
ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18487

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM
LM	LDW280-54575	[illegible]	
		LM-5 45	
		LM-4 44	
		LM-3 43	
		LM-2 42	
		LM-1 41	
		LM-10 40	
		LM-9 39	
		LM-8 38	
		LM-7 37	
		LM-6 36	
		LM-5 35	
LM	LDW280-54575	LM-4 34	

PART NO LDW280-18487-11

WORK PKG FUNCTION NO-110 3

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBC SH

SHEET	[illegible]	000300
REV		
SHEET		
REV		
SHEET		
REV		

LAST SECT LTR USED

LAST DASH NO USED -11

GRUMMAN REL INFO

PRIM NO [illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ± .020 ± 2°

P ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS I ENGRG CHANGE

CLASS II ENGRG CHANGE ✓

LCD 433 CCA 556

CONTRACT NO NAS9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY [illegible]

LAYOUT BY G.S.-[illegible]

CHECKED BY 4-5-68

GRP ENGR

STRUCTURES

STRUCTURES

PROJ ENGR

REL GROUP

WEIGHTS

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L I NEW YORK

GUSSET
DESCENT STAGE - QUAD II - UPPER
DECK-BOOM SPT BEAM-RH END

SIZE B | CODE IDENT NO 26512 | LDW280-18487

SCALE NONE | SHEET [illegible] OF 3

CDR 4-12-68

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NAS 9-1100

QTY PER ASSEMBLY	ZONE IDENT	PART NO.	REQT	NOMENCLATURE OR DESCRIPTION	MATERIAL	MATL SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18437		[illegible]	[illegible]	[illegible]					

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
							ANODIZE	[illegible]
							[illegible]	[illegible]

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH [illegible]

GRUMMAN AIRCRAFT ENGRG CORP BETHPAGE L. I. NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18437

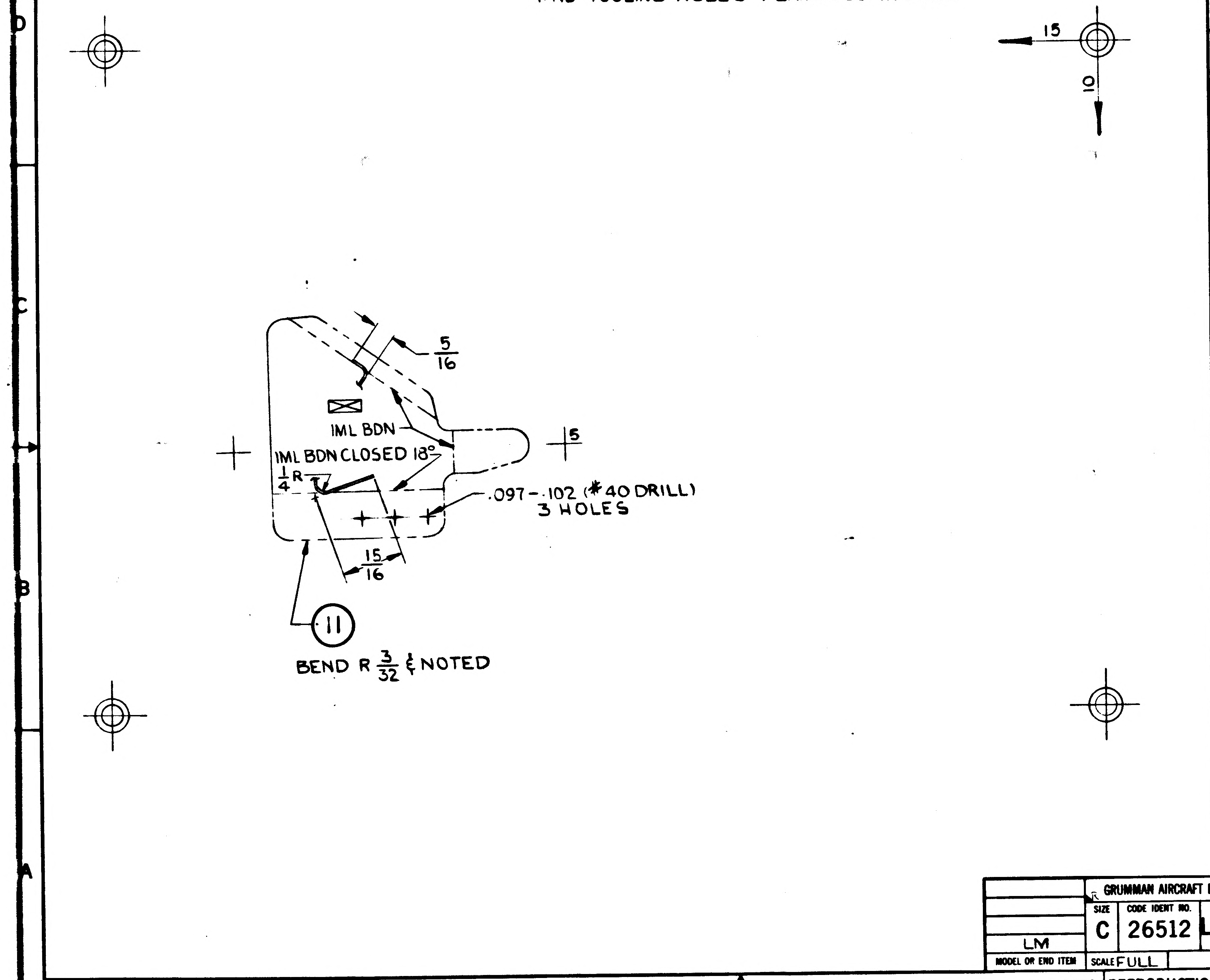
SCALE NONE SHEET [illegible]

01

NAS 9-1100

TRAN.OK
T.S 4-1-63

NOTE:
1. NO TOOLING HOLES PERMITTED IN PART.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18487
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18487

LDW280-18487

01

NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280	EO NO. 969
CONTROL INFO NO. LDW280B3375	

FOR THE FOLLOWING PARTS ADD TM 5/R(65) REQUIREMENTS, N/A LDW280-54575 FOR THE QUANTITIES NOTED

DWG NO *	TITLE	QUANT REQD	CHANGE NO
LDW280-17712-13	SEE DWG	1	A7
-14		1	
-21		1	
-17712-22		1	
-17714-11		2	C6
-13		2	
-19		4	
-21		8	
-23		2	
-25		2	
-27		2	
-17714-29		2	
-17442-11		1	B4
-17442-13		1	
-18346-11		1	A2
-18346-13		3	
-18346-15		1	
-18356-13		1	A8
-19		1	
-31-1		1	
-23		2	
-33		1	
-34		1	
-35		1	
-36		1	
-18356-37		4	
-17294-23		1	B6
-17294-27		1	
-18370-17		1	A3
-19		1	
-21		1	
LDW280-18370-22	SEE DWG	1	

DWG NO. *	TITLE	QUANT REQD	CHANGE NO.
	SEE DWG		
LDW280-18322-11		1	A3
-12		1	
-13		1	
-18372-14		1	
-18487-11		1	A1
-18379-15-1		1	A5
M17266-3		1	C6
M17266-4		1	
M17629-1		1	B5
M17640-1		1	B8
M17640-2		1	
M17748-13		1	A4
M17766-11		1	A3
M17769-11		1	A2
M17952-11		1	A1
M17806-11		1	A2
-18349-13-1		1	A8
-14-1		1	
-15			
-16		1	
-23		1	
-24		1	
-27		1	
-28		1	
-29		1	
LDW280-18349-30	SEE DWG	1	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075 CCA 586 FKG 2U	(5)

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON-(*) ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: K 5/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY								
DATE	5/13/68			5-13-68			5/13/68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 969

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

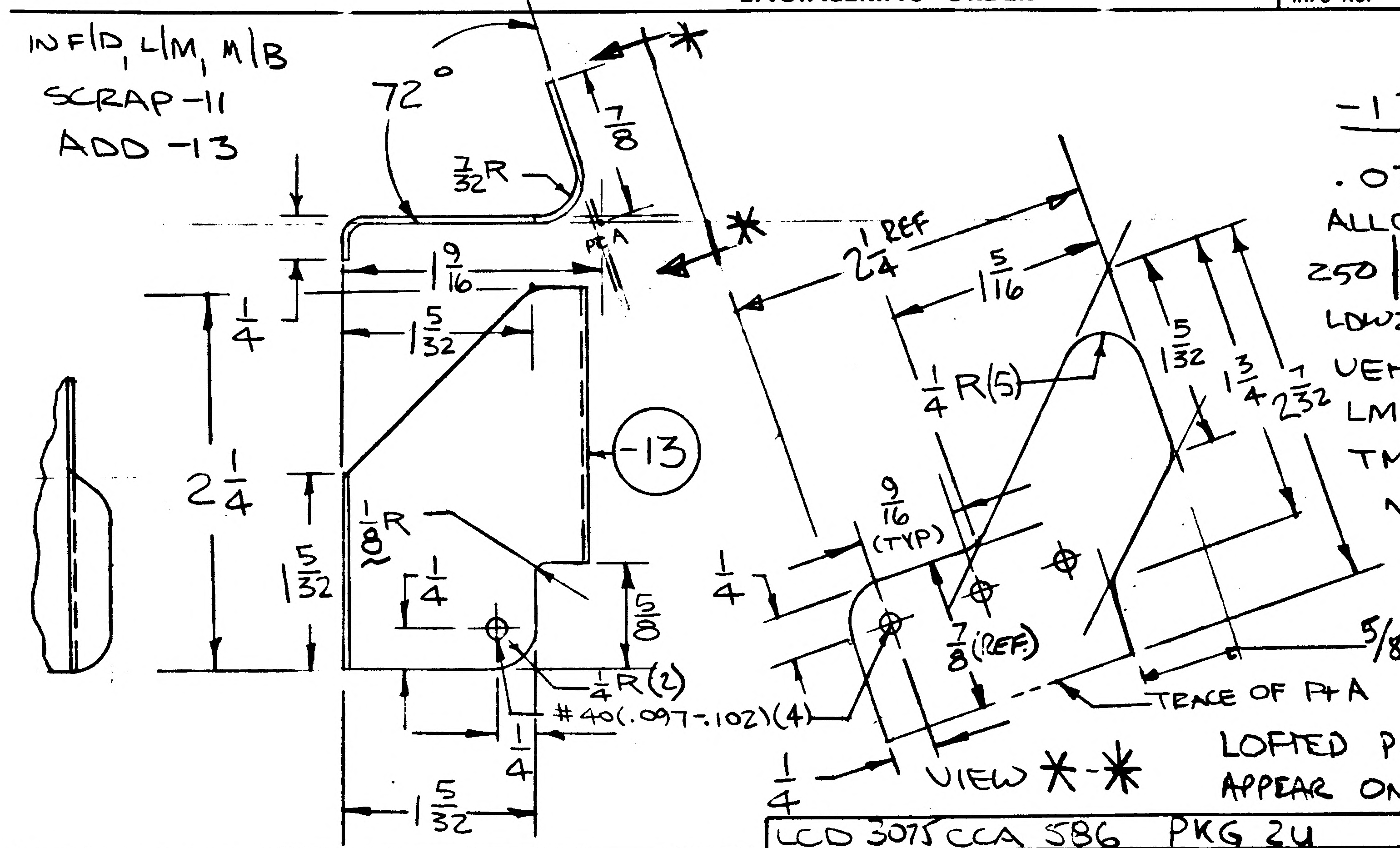
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18487
EO NO. A2
CONTROL INFO NO. LDW280B3848

INFD, L/M, M/B
SCRAP -11
ADD -13



72°
7/32 R
7/8
*
PT A
1 9/16
1 5/32
1/4
2 1/4
1 5/32
1/8 R
1/4
5/8
-13
1/4 R (2)
#40 (.097-.102) (4)
1/4
1 5/32
2 1/4 REF
1 5/16
1/4 R (5)
5/32
1 3/4
2 7/32
9/16 (TYP)
1/4
7/8 (REF)
5/8 REF
TRACE OF PT A
1/4
VIEW *-*

-13

.032 ~ 2024-T3 AL ALLOY SHT ~ QQ-A-250/4 ~ FIN 88 ~ N/A
LDW280-54575 ~ 1 REQD/VEH ~ EFF LM-4 (34) THRU LM-15 (45) OUT (70), TM-5/R (65) ~ BR 3/32 & NOTED

LOFTED PART - DIMS NOT TO APPEAR ON DWG.

LCD 3075 CCA 586 PKG 24
LCD 1433 CCA 586 PKG 13 ✓
⑤

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

REASON FOR EO
TO STIFFEN SEQ BAY UPPER DECK

DESCRIPTION OF EO
ADDED -13
SCRAPPED -11

GAEC EO RELEASE C
H.F 6/11/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LM-4 (34) THRU	
		LM-15 (45) OUT (70),	
LM		TM-5/R (65)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

APPROVED BY								
DATE	6/10/68			6/10	6/11/68		6/11/68	6-11-68
	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE: GUSSET, DS ~ QUAD II ~ UPR DECK ~ BOOM SPT SEAM ~ RH END
DRAWING NO. LDW280-18487
EO NO. A2

6-12-68
ISSUED BY G. Belev / J. LANG
SECTION UDI
GROUP NO. 335
PL 25

01
NAS 9-1100

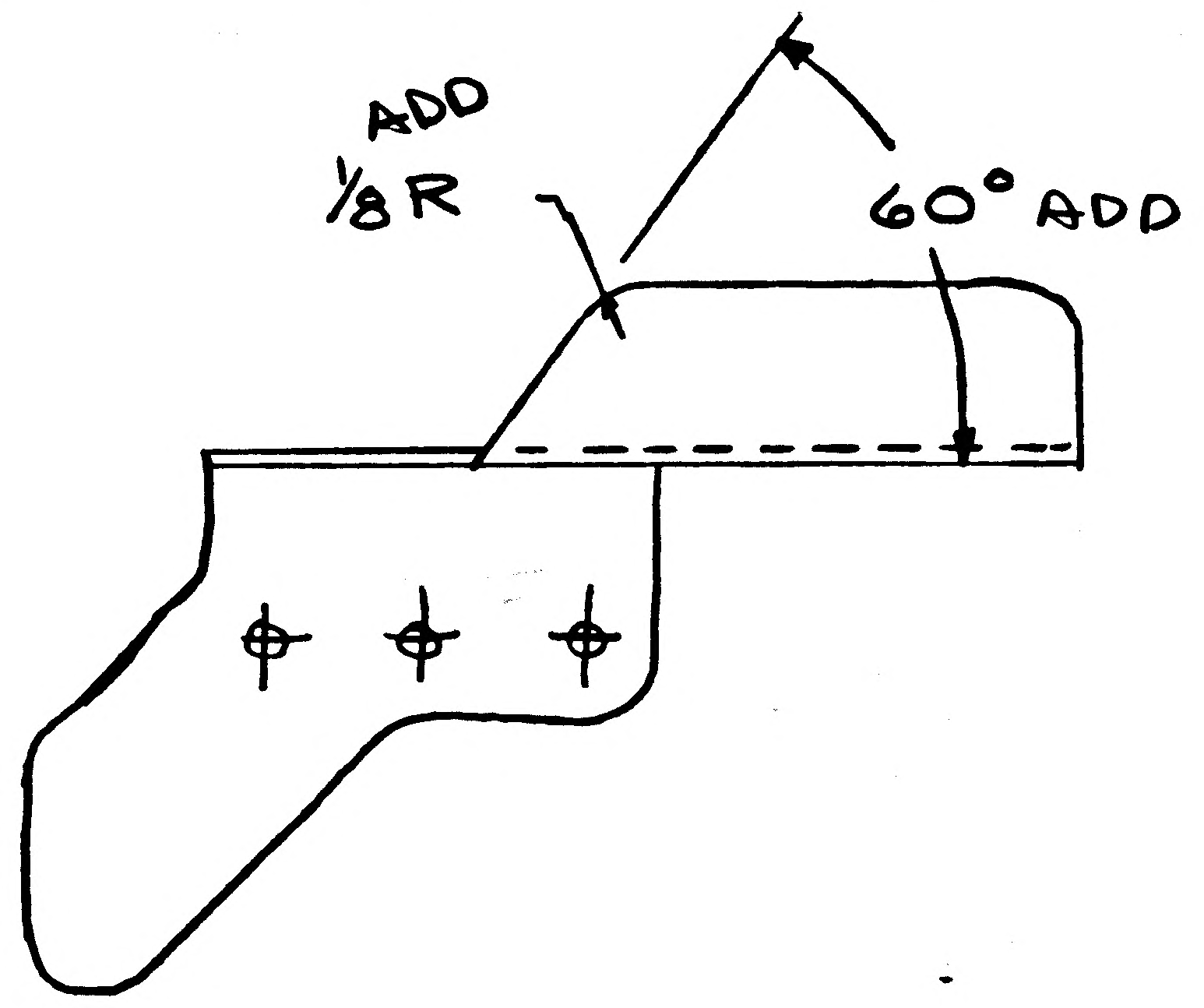
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18487 | EO NO. A3
CONTROL INFO NO. LM-5-20242

THIS IS A REVISION OF EO A-2

F/D
-13



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 1433 CCA586 PKG13 LCD3075 CCA586 PKG 2U (5)

REASON FOR EO: TO STIFFEN SEQ BAY UPPER DECK

DESCRIPTION OF EO: REF. EO A2 F/D ADDED DIM'S 1/8R & 60°

GAEC EO RELEASE: C JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-5(45), DVT(70)	
		TM-5/R (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE				2	DV 6/11/68	DV 6/11/68		6-18-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	GUSSET, DS - QUAD II, UPR DECK BOOM SPT BEAM - RH END	LDW280-18487	A3

ISSUED BY LIAISON (H. BABCOCK) SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487 ✓	A4	
-18488	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM ✱

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE				4-2-69				

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1358

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO/1554
CONTROL INFO NO. LDW 280B 3118		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW 280-18478	SEE DWG	A4	
✓ 487		A5	
489		A4	
490		B2	
492		A3	
500		A3	
505		A5	
LDW 280-18506	SEE DWG	A4	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	8-13-69 JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY					M		Bauman	
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/15/69	
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1554

8-26-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1630
CONTROL INFO. LDW280B 8454

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280 - 18283	SEE DRAWING	LDW280-54575	B3
-18487		-54575	A6
-18610		-54575	A5
-18611		-54575	A4
-18612		-54575	A4
-18613		-54575	A5
M 17266		-54575	D3
M 17629		-54575	C2
M 17640		-54575	C3
M 17798		-54575	A7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9+10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-22-9 8/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY: PSF
DATE: 8-8-69
VDI

SUPPORT — RELIAB. GROUP — GROUP LEADER 8/8/69 — STRESS GROUP 8/12/69 — LIAISON ENGRG — PROJ ENGRG 8/12/69 — 8/12/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18488 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	LM-4 (34)	2
PART NO. LDW280-18488 -21			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	LM-4 (34)	1 EA
PART NO. LDW280-18488 -13,-14, -23,&-24			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
L M	LDW280-54665	TM-5/R(65)	1
↑	LDW280-54665	DVT (70)	2
	LDW 280-58665	LM-15(45)	2
	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
	↓	LM-9(39)	2
	LDW280-58665	LM-8(38)	2
↓	LDW280-56665	LM-7(37)	2
LM	LDW280-56665	LM-6 (36)	2
LFM-140	LDW280-54665	LM-5 (35)	2
LFM-140	LDW280-54665	LM-4 (34)	2
PART NO. LDW280-18488 -25			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	TM-5/R(65)	1 EA
↑	LDW280-54665	DVT (70)	2 EA.
	LDW280-58665	LM-15(45)	2 EA
	↑	LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
	↓	LM-9(39)	2 EA
	LDW280-58665	LM-8(38)	2 EA
	LDW280-56665	LM-7(37)	2 EA
	LDW280-56665	LM-6(36)	2 EA
↓	LDW280-54665	LM-5(35)	2 EA
LM	LDW280-54665	LM-4 (34)	2 EA
PART NO. LDW280-18488-15,-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW-280-54665	TM-5/R(65)	1 EA
↑	LDW280-54665	DVT (70)	1 EA
	LDW280-58665	LM-15(45)	1 EA
		THRU	
	LDW280-58665	LM-8(38)	1 EA
	LDW280-56665	LM-7(36)	1 EA
	LDW280-56665	LM-6(36)	1 EA
↓	LDW280-54665	LM-5(35)	1 EA
LM	LDW280-54665	LM-4(34)	1 EA
PART NO. LDW280-18488-11,-12			

FOR ADDITIONAL USAGE INFORMATION SEE SH 1.01

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10		2.00	3.00			
REV	A	A	A		A	A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -33

GRUMMAN REL INFO A

PRIM NO. 207 | VK(001) ME-16 | A-4/7/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433, CCA586

OK

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	V.NARONIS 4/6/68
LAYOUT BY	B. CLARK R.C.
CHECKED BY	D. FASS 4-18-68
GR. LEADER	4-12-68
VEH.DES.INT.	4/12/68
STRUCTURES	4/19/68
STRUCTURES	FEB 4/19/68
WEIGHTS	
RELIABILITY	
PROJ ENGR	4/20/68
REL GROUP	Marsh 4-22-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-THERMAL SHIELD SUPPORT
QUAD II ~ UPPER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18488 | A

SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

CDR04-12-68

01

NAS 9-1100

LDW280-18488 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	TM-5/R(65)	1
↑	LDW280-54665	DVT (70)	2
	LDW280-58665	LM-15(45)	2
	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
	↓	LM-9(39)	2
	LDW280-58665	LM-8(38)	2
	LDW280-56665	LM-7(37)	2
↓	LDW280-56665	LM-6(36)	2
LM	LDW280-54665	LM-5(35)	2

PART NO. LDW280-18488-33

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54665	TM-5/R(65)	1 EA
↑	LDW280-54665	DVT (70)	1 EA
	LDW280-58665	LM-15(45)	1 EA
	↑	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
	↓	LM-9(39)	1 EA
	LDW280-58665	LM-8(38)	1 EA
	LDW280-56665	LM-7(37)	1 EA
↓	LDW280-56665	LM-6(36)	1 EA
LM	LDW280-54665	LM-5(35)	1 EA

PART NO. LDW280-18488-27 -28 -31 & -32

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH
SHEET
REV
SHEET
REV
SHEET
REV
LAST SECT LTR USED
LAST DASH NO. USED
GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18488	A

SCALE NONE
SHEET 1-01 OF

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 1.10							INC LEO280-964 ADDED SH 1.10	TM-5/R			GRACEFFO 3-17-69	J.V.	
	2	1.00 1.10 2.00 3.00		LFM 140					INC EO A2	LM-4 THRU LM-15					
	3	1.10 3.00		LFM 140					INC EO A3						
	4	1.00 1.01 2.00 3.00							INC EO A4 ADDED SH 1.01	LM-5 THRU LM-15 DVT TM-5/R					
	5	1.00 1.01 2.00 3.00							INC EO A5						
	6	1.00 1.01							INC LEO280-1171	LM-6 THRU LM-15			SCHWETER 3-17-69		
	7	1.00 1.01							INC LEO280-1287	LM-8 THRU LM-15					
	8					✓		LCD 2360 Ⓡ	REF EO A3: ADDED DVT & TM5/R TO EO EFF. & ADDED NOTE 2 wm 3-26-69	DVT & TM5/R			H.D.	F. Zukas 3-21-69	

CHG APPROVED						
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	
A	3-27-69 Thoyusen	3/27/69		4/3/69		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18488	A
SCALE NONE		SHEET 1.10	Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18488-33	E	BRACKET	AL ALLOY SH.	QQ-A-250/12	2024-O	.050 × 2 × 3	T4	76	
		-32		BRACKET			7075	.040 × 4 × 4	T6	88	
		-31		BRACKET			7075	.040 × 4 × 4	T6	88	
		-28		BRACKET			7075	.050 × 4 × 5	T6	88	
		-27		BRACKET			7075	.050 × 4 × 5	T6	88	
		-25		BRACKET			7075-T6	.040 × 1¾ × 2⅜	NONE	88	
		-24		BRACKET			7075	.040 × 4 × 4	T6	88	
		-23		BRACKET			7075	.040 × 4 × 4	T6	88	
		-21		CLIP			7075	.050 × 2 × 3	T6	88	
		-17		CLIP			7075	.040 × 2 × 3	T6	88	
		-15		CLIP				.040 × 2 × 4	T6	88	
		-14		BRACKET				.050 × 4 × 5	T6	88	
		-13		BRACKET				.050 × 4 × 5	T6	88	
		-12		BRACKET				.040 × 4 × 12	T6	88	
		LDW280-18488-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 × 4 × 12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL ALLOY HEAT TREAT	MIL-H-6088
76	ALODINE	LSP14-9010
T4	AL ALLOY HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18488	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

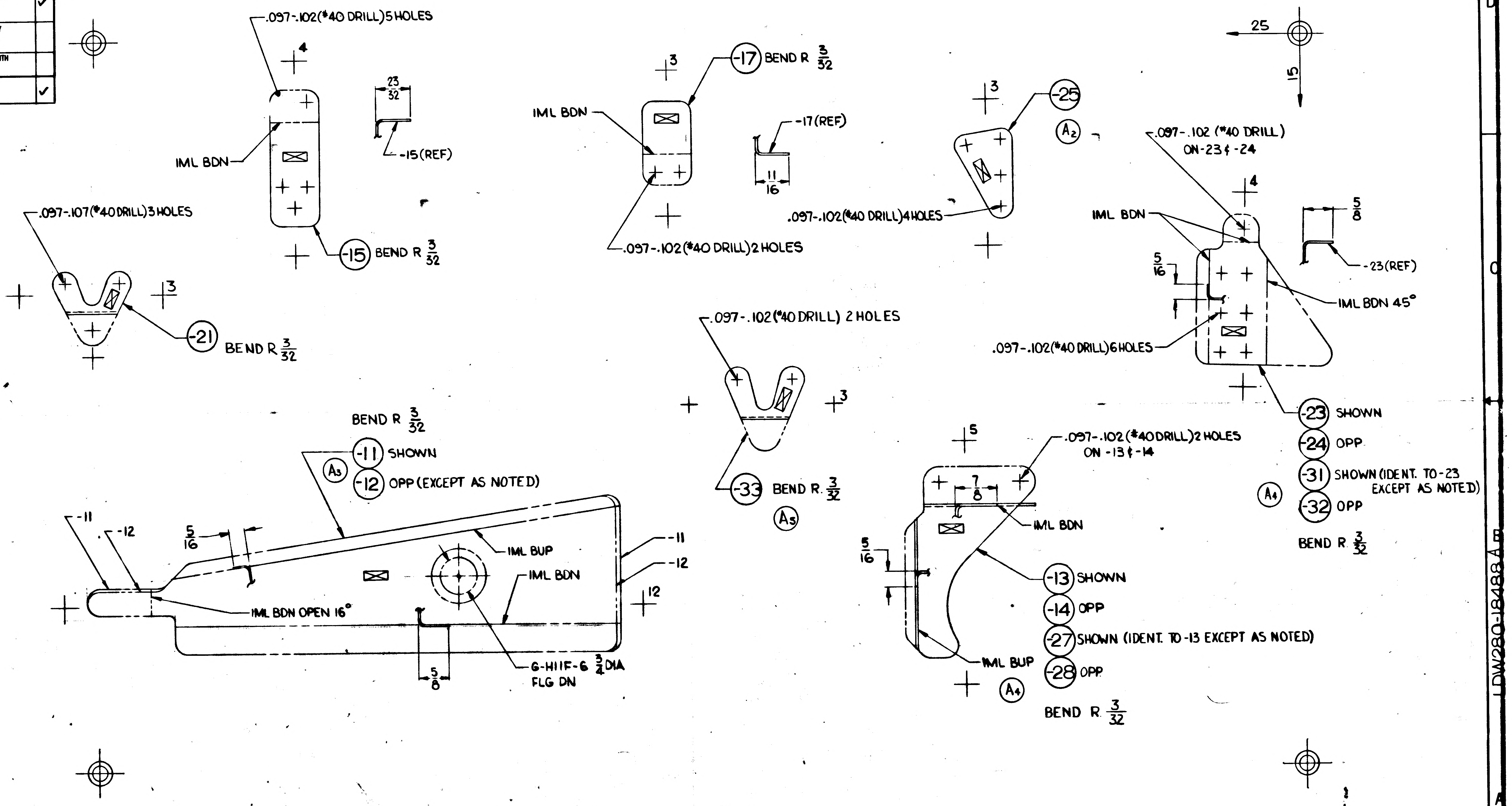
01

NAS 9-1100

LDW280-18488 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.
Ⓐ3 2. THIS DWG AFFECTED BY THE FOLLOWING LFM. SEE LFM FOR EFF. & MODIFICATION, LFM 140.



25
15
.097-.102(#40 DRILL)5 HOLES
4
IML BDN
23/32
-15(REF)
-15 BEND R 3/32
IML BDN
3
-17 BEND R 3/32
-17(REF)
11/16
.097-.102(#40 DRILL)2 HOLES
3
-25
A2
.097-.102(#40 DRILL)4 HOLES
.097-.107(#40 DRILL)3 HOLES
3
-21 BEND R 3/32
.097-.102 (#40 DRILL) ON -23 & -24
4
IML BDN
5/8
-23(REF)
5/16
IML BDN 45°
.097-.102(#40 DRILL)6 HOLES
-23 SHOWN
-24 OPP
-31 SHOWN (IDENT. TO -23 EXCEPT AS NOTED)
A4
-32 OPP
BEND R 3/32
.097-.102(#40 DRILL) 2 HOLES
3
-33 BEND R. 3/32
A5
BEND R 3/32
A3
-11 SHOWN
-12 OPP (EXCEPT AS NOTED)
-11
-12
5/16
IML BUP
IML BDN
IML BDN OPEN 16°
-11
-12
12
5/8
6-H11F-6 3/4 DIA FLG DN
5
.097-.102(#40 DRILL)2 HOLES ON -13 & -14
7/8
IML BDN
5/16
-13 SHOWN
-14 OPP
-27 SHOWN (IDENT. TO -13 EXCEPT AS NOTED)
-28 OPP
IML BUP
A4
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18488	A
SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

LDW280-18488 A

01 NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 964
CONTROL INFO NO. LDW280 B3421		

FOR THE FOLLOWING PARTS ADD TM-5/R (65) REQUIREMENTS, N/A LDW280-54665 FOR THE QUANTITIES NOTED

DWG NO*	TITLE	QUANT/MOD	CHANGE NO.
LDW 280P18282-1	SEE DWG	1	AB ✓
-13		1	
-54739-1		1	A1 ✓
-3		1	
-18110-11		2	A6 ✓
-15		1	
-18459-11		1	A1 ✓
-12		1	
-13		1	
-15		1	
-16		1	
-17		1	
-19		1	
-54674-1		1	A2 ✓
-54674-3		1	
-18488-11		1	A1 ✓
-12		1	
-13		1	
-14		1	
-15		1	
-17		1	
-19		1	
-21		1	
-23		1	
-24		1	
-54742-1		1	A1
-3		1	
-5		1	
-18585-11		3	A1
-18486-11		1	A1
-12		1	
-13		1	
-15		1	
-17		1	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2V

REASON FOR EO	DESCRIPTION OF EO	GAEC \ C EO RELEASE (5)
ADD TM-5/R (65) REQMTS	ON (*) ADDED TM-5/R (65) REQMTS	SK 5/22/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS								
✓ REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP	APPROVED BY / DATE	5/16/68 VDI	SUPPORT	RELIAB. GROUP	5-16-68 GROUP LEADER	5/16/68 STRESS GROUP	5/16/68 LIAISON ENGRG, 5-16-68 PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	964

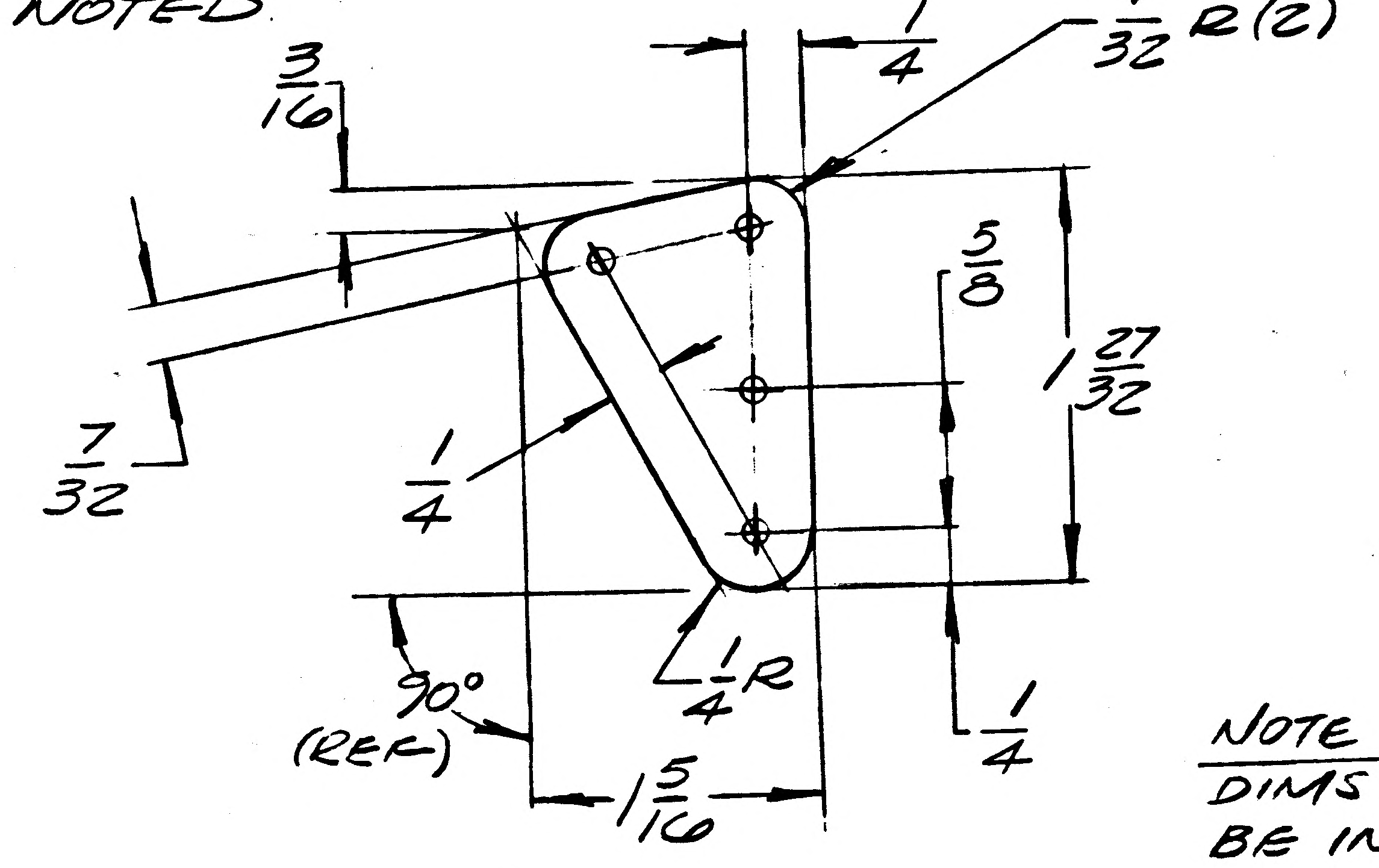
5-17-68 ISSUED BY T. COTTER x3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18488
EO NO. A2
CONTROL INFO NO. LM-5-20383

IN FLD, B/M, & MOD/BLK
ADD -25 IDENT TO -19
EXCEPT AS NOTED.
1 & T=E
SCRAP -19.



NOTE TO DRAFTING
DIMS ARE NOT TO
BE INCORP ON DWG.
LOFT PART.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 2360

(5)

REASON FOR EO: LONGER PART REQ'D TO PROVIDE E.D. ON INSTL

DESCRIPTION OF EO: IN FLD, B/M, & MOD/BLK
REMOVED -19
ADDED -25

GAEC EO RELEASE: 05 025

MODEL	~~PROCURING ACTIVITY~~ NO. E1	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 140	LM4(34) &	LM5(35)
		LM 6(36)	THRU
		LM15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-19

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				Z	JFJ	JFJ		Lauman
DATE	7/3/68				7-24-68	7-24-68	7/3/68	7/24/68
	VD1							~~CCT~~

PRIORITY: C
DRAWING TITLE: BRKT, D/S-THERMAL SHLD SUPPORT-QUAD II-UPPER DECK
DRAWING NO.: LDW280-18488
EO NO.: A2

ISSUED BY LIAISON MD REYES X86755 SECTION VD1/P. THORJUSEN GROUP NO. 335 PL 25

Q 1
NAS 9-1100

ENG 32.1 REV 3-65

RELEASED BY LIAISON

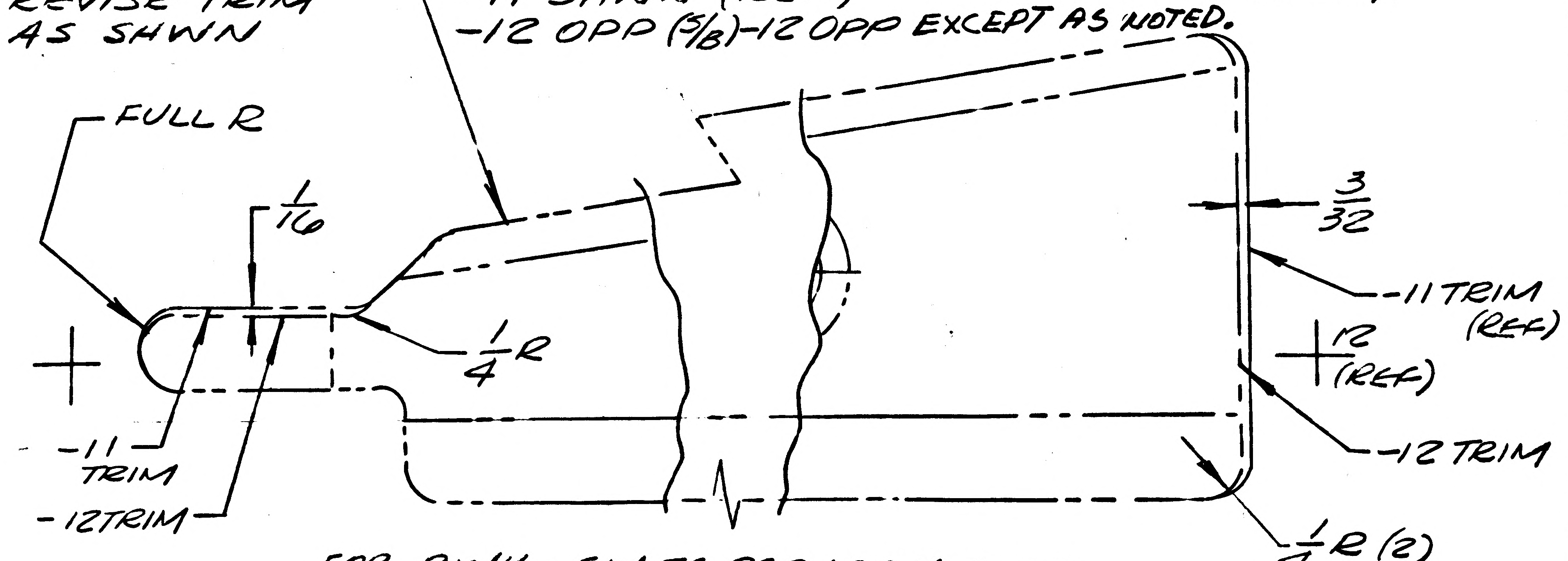
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18488		EO NO.	A3
CONTROL INFO NO. LM-5-20394			

DRAFTING NOTE: LOFTED PART DIMS ARE NOT TO BE ADDED TO DWG

IN FLD (ON-12)
REVISE TRIM
AS SHWN

-11 SHWN (REF)
-12 OPP (5/8)-12 OPP EXCEPT AS NOTED.



FOR RWK - FIN. 76 PER LSP 14-9010
RWK TRIM.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD2360	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO MAKE INSTL OF PART POSSIBLE ON NEXT ASSY.	IN FLD (ON-12) REVISED TRIM & C/5-12 OPP EXCEPT AS NOTED WAS -12 OPP.	34 035

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	8/1/68				7-27-68	7-27-68	7-30-68
LM	LFM140	LM4(34)	& LM5(35)	REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP BM	LIAISON ENGRG CH	PROJ ENGRG
		LM6(36)	THRU	PRIORITY	DRAWING TITLE					DRAWING NO.				EO NO.	
		LM15(45)		C	BRKT-D/S-THERMAL SHLD SUPPORT QUAD II-UPPER DECK					LDW280-18488				A3	

ISSUED BY LIAISON M.D. Reyes X86755 SECTION VD1/P. THORJUSEN GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

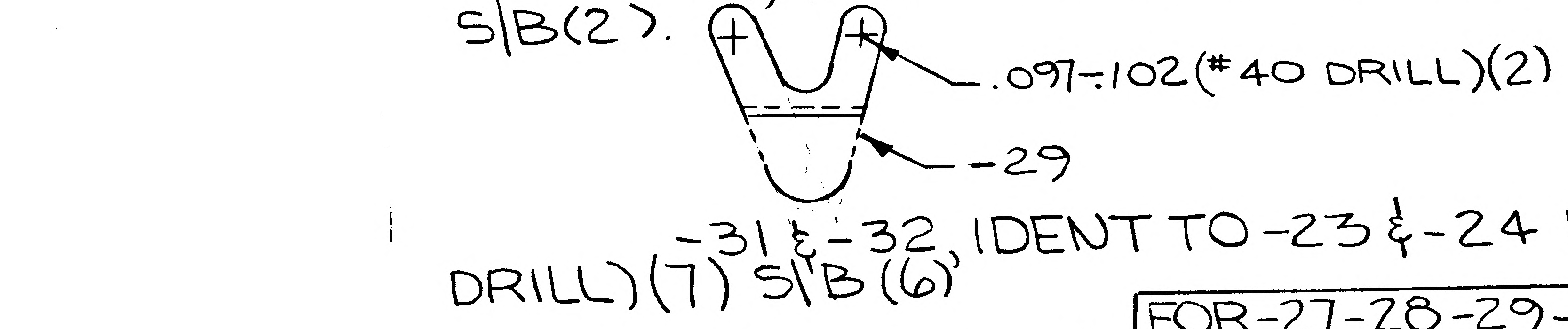
ENGINEERING ORDER

DWG. NO. LDW280-18488
EO NO. A4
CONTROL INFO NO. LDW280B5145

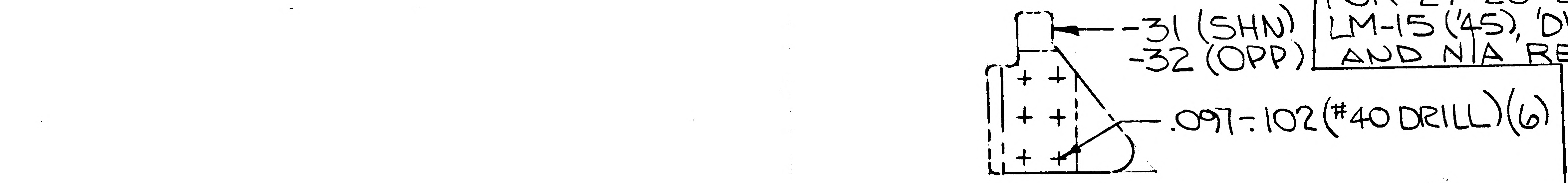
RESTRICT -13, -14 -21, -23 -24 EFF LM-4(34) WAS EFF LM-4(34) THRU LM-15(45), DVT(70), TM-5|R(65)

ADD -27 & -28, IDENT TO -13 & -14 RESPECTIVELY EXCEPT DELETE .097-.102 (#40 DRILL)(2)

-29, IDENT TO -21 EXCEPT .097-.102 (#40 DRILL)(3) S|B(2).



-31 & -32, IDENT TO -23 & -24 EXCEPT .097-.102 (#40 DRILL)(7) S|B(6)



FOR -27-28-29-31-32 EFF LM-5(35) THRU LM-15(45), DVT(70) TM-5|R(65) ~ QTYS AND N/A REMAIN THE SAME.

ON-25, ADD EFF DVT(70) TM-5|R(65) QTY & N/A REMAIN THE SAME.
ON-19 REMOVE EFF DVT(70), TM-5|R(65) (REF EO A-2) ok

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 CCA586 PK17	LCD 3075 CCA 586 PK 2 ✓	(5)

REASON FOR EO: TO UTILIZE MASTER DRILL TEMPLATES

DESCRIPTION OF EO: RESTRICTED -13 -14 -21-23-24 EFF LM-4(34) WAS LM-4(34) THRU LM-15(45) DVT(70) TM-5|R(65) ADDED -27-28-29-31-32, EFF LM-5(35) THRU LM-15(45) DVT(70) TM-5|R(65), ADDED ON -25 EFF TM-5|R(65), DVT(70) REMOVED, ON-19 EFF DVT(70) TM-5|R(65)

GAEC EO RELEASE: C [illegible] 7/30/[illegible]

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	LM-15(45)
		DVT(70)	TM-5|R(65)
LM			

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	✓ SCRAP

APPROVED BY	VDI	SUPPORT Therm	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
DATE	8/20/68	8/2[illegible]/[illegible]		8-20-68	8/2[illegible]/68		8/20/68	8-30-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT ~ DS ~ QII ~ THERMAL SHIELD SUPPORT ~ UPR DECK	LDW280-18488	A4

CDR 090468
ISSUED BY BELEV ~ THORJUSEN 86046 SECTION VEH DES INT GROUP NO. 335 PL 25

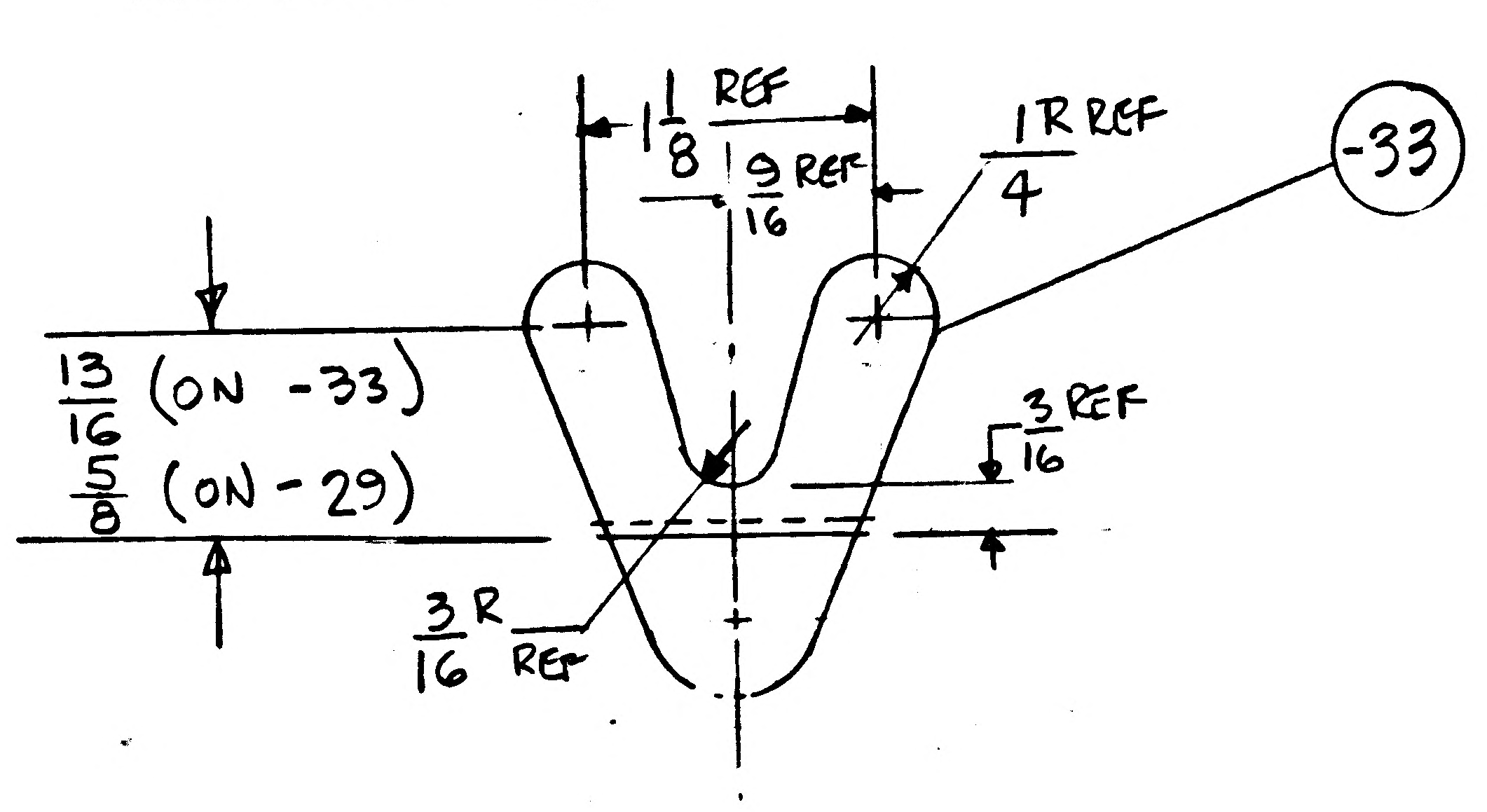
Q1
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18488
EO NO. A5
CONTROL INFO NO. LDW280B5702

ADD -33 IDENTICAL TO -29 EXCEPT AS NOTED.
REMOVE -29



-33 MATL .050 2024-0
HEAT TREAT T4 FINISH #76
N/A LDW280-54665
QTY 2 REQD/MOD
EFF LM-5(35) THRU LM-15 (45), DVT(70), & TM5/R(65)

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD1433 CCA586 PKG 29, ECP A020R, LCD3075 CCA586 PKG 2L PAGE 20.1

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE CLEARANCE BETWEEN THERMAL SHIELD & BOOM SLAVING MECHANISM	ADDED -33 REMOVED -29	JK 10/3/68

MODEL	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	TM5/R(65)	
LM	DVT(70)	
LM	LM5(35) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-29

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	10/1/68			10-1-68	10/1/68		10/1/68	10-3-68
	VDI							

PRIORITY: C
DRAWING TITLE: BRACKET-DS-THERMAL SHIELD SUPPORT QUAD II - UPPER DECK
DRAWING NO.: LDW280-18488
EO NO.: A5

10/11/68
ISSUED BY J. LANG / P. THORJUSEN x 87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1171
CONTROL INFO NO. LDW280 B5608		

ON FOLLOWING PART NO. REVISE N/A. EFFECTIVITY LM-6(36) THRU LM-15(45)

	CHG LTR	* PART NO	REVISE N/A TO	WAS
✓	A8	LDW280-18110-11 & -15	LDW280-56665	LDW280-54665
✓	A2	-18459-11, -12, -13 -15, -16, -17 -19	↕	↕
✓	B4	-18486-11, -12-19, -21, -27, -29	↕	↕
✓	A6	-18488-11, -12, -15 -17, -25, -27 -28, -31, -32 -33	↕	↕
	A4	LDW280-54674-1 & 3	LDW280-56665	LDW280-54665

* FOR TITLE SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3179 PKG 9 ECP A062R CCA 1278 (5)

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATE

DESCRIPTION OF EO: FOR * REVISED N/A TO LDW280-56665 (WAS) LDW280-54665 EFF LM-6(36) THRU LM-15(45)

Ⓡ GAEC EO RELEASE C

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)

DRAWING CHANGE REQD: ✓ REVISE DWG · RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK · SCRAP

APPROVED BY	N.R.							
DATE	10/18/68	10/18/68		10/17/68	10/18/68		10/18/68	10-22-68
	VDI	~~SUPPORT~~ TAERWG	RELIAB. GROUP	GR. UP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COST~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1171

CDR 110168
ISSUED BY TORRACO / THORJUSEN X 1153
SECTION VDI
GROUP NO. 335
PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1287
CONTROL INFO NO. LDW280B7091

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15 (45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHANGE LETTER
LDW280-18110	-11&-15	LDW280-56665	LDW280-58665	A9
-18459	-11,-12,13,15,-16,-17&-19	-56665	-58665	A3
-18486	-11,-12,-19,-21,-23&-25	-56665	-58665	B6
-18488	-11,-12,-15,-17,-25,-27,-28,-31,-32&-33	-56665	-58665	A7
-18661	-11	-56648	-58648	A2
-54596	-1	-56599	-58599	A8
-54602	-1-1	-56648	-58648	B6
-54674	-1&-3	-56665	-58665	A5
-54739	-1-1&-3-1	-56665	-58665	A9
-54742	-41-1&-51	-56665	-58665	B3
-56601	-1	-56599	-58599	A2
-56767	-1,-3&-5	-56648	-58648	A2
LDW280-56804	-1	LDW280-56815	LDW280-58815	A2

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: SK 2/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	Jap	NMR		BJT	NH		Jap	Jhm
DATE	2/13/69	2/17/69		2/12/69	2/10/69		2/17/69	2-19-69
	V.D.I.	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: L-0280
EO NO.: 1287

CDR030369
ISSUED BY W. KAY x87222 / D SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487 ✓	A4	
-18488 ✓	B1	
-18489	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/2/69			4-2-69	4/8/69		4/9/69	

PRIORITY C DRAWING TITLE SEE DWG DRAWING NO. LEO 280 EO NO. 1358

052869 ISSUED BY: MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1736
CONTROL INFO NO. LDW280B8725

IN MOD. BLK. FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME. EFF: LM-10 (40) THRU LM-14 (44)

DRAWING NUMBER *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR.
LDW280-56806-1	LDW280-60817	LDW280-58817	SEE DWG	A3
-54739-1-2 & -3-2	-60665	-58665	↑	B3
-54742-41-3	-60665	-58665		B6
-56767-5	-60648	-58648		A4
-56601-1	-60599	-58599		A4
-18110-11 & -15	-60665	-58665		B3
-18459-11, -12, -13, -15, -16, -17 & -19	-60665	-58665		A6
-18486-11, -12, -19, -21, -23 & -25	-60665	-58665	↓	C2
LDW280-18488-11, -12, -15, -17-25, -27, -28, -31, -32 & -33	LDW280-60665	LDW280-58665	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3994 PKG92	(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A ** (WAS) ***

GAEC EO RELEASE: VK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY									
DATE	—	10/2/69		10-20-69	10/21/69		10/22/69	10/23/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1736

CDR110369
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

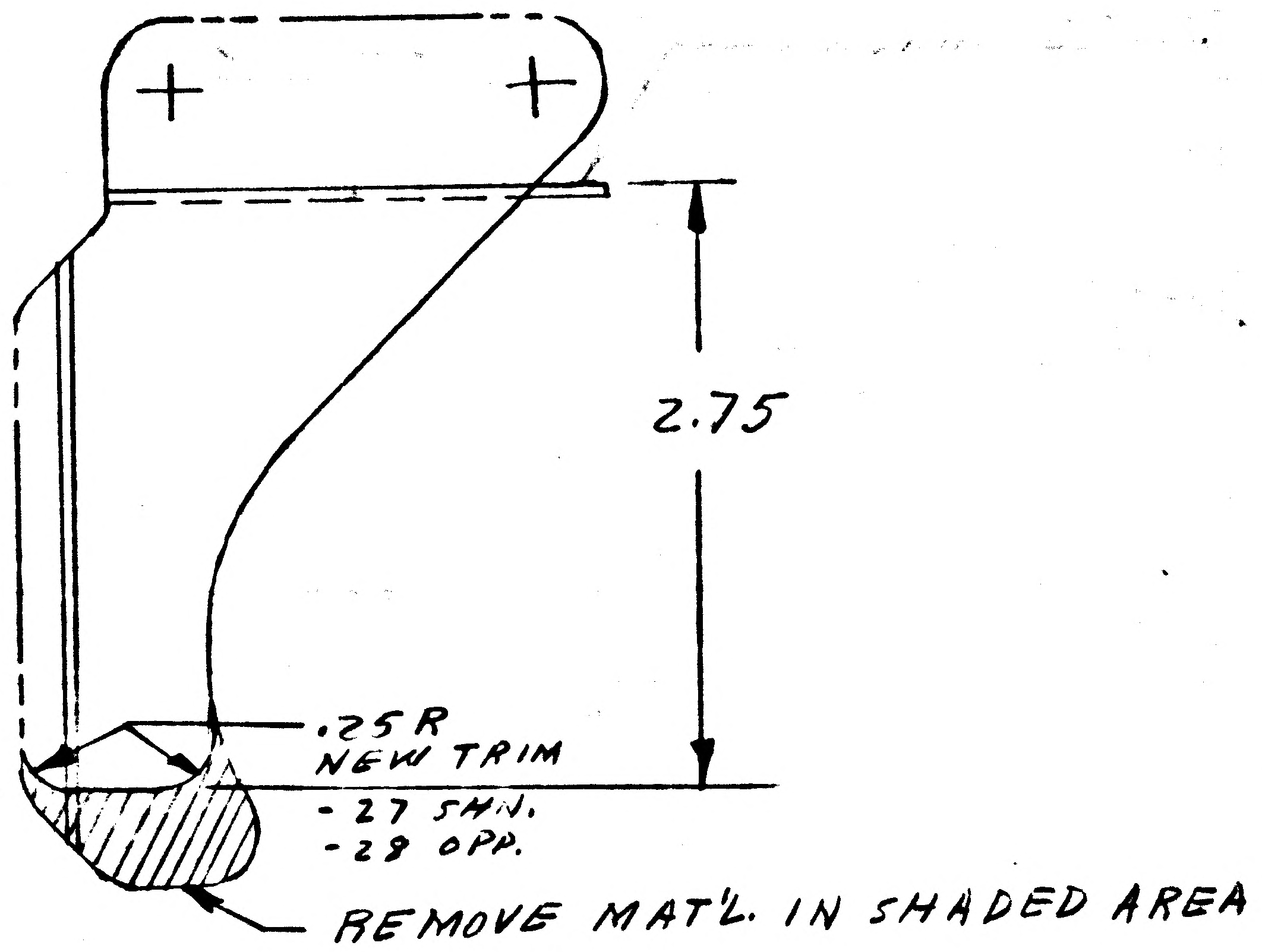
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18488

EO NO. B3

CONTROL INFO NO. L 5-23250



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994

REASON FOR EO: TO AGREE WITH NEW LOCATION ON N/A LDW280-60665

DESCRIPTION OF EO: TRIMMED -27 & -28

GAEC EO RELEASE ② CAR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10 (40) THR LM-13 (43)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	PST			DRL	KC	CH	PST	
DATE	9-8-70			9/3/70	9/1/70	9-1-70	9-10-70	9/1/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~

PRIORITY: C

DRAWING TITLE: BRACKET - D/S - THERMAL SHIELD SUPT. - QUAD II - UPPER DECK

DRAWING NO.: LDW280-18488

EO NO.: B3

ISSUED BY LIAISON C. COSHA 86755 SECTION V. D. I. GROUP NO. 280 PL 25

01

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LDW280-18489

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST 7)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-54679	LM-4(34)	2
PART NO. LDW280-18489-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST 7)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54679	LM-4(34)	1 EA
PART NO. LDW280-18489-11,-13,-17, -19 & -19		GAEC SCH NO. 51	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO 111

SH REV STATUS. FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	00		200	300					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO USED	-9	PRIM NO. 207		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 433 CCA536

CONTRACT NO NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. CARCADDOULAS	RELABILITY	
LAYOUT BY	G. HANSMANN		
CHECKED BY	J. Bell 1-3-68		
GP LEADER			
RE-DES.			
STRUCTURES		PROJ ENGR	G. Paster 1/68
STRUCTURES	1/5/68	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L. I. NEW YORK

CHANNEL
DESCENT STAGE-SCIENTIFIC EQUIP BAY
UPPER DECK-CABLE BRACKET SPT

SIZE B
CODE IDENT NO. 26512
LDW280-18489
SCALE NONE
SHEET 100 OF 3

ENG 77.1 12-65

CDR 12-29-67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18489-19	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 × 2 × 2	T6	88	
	-18	↕		CLIP	↕	↕	↕	.032 × 2 × 2	↕	↕	
	-17	↕		CLIP	↕	↕	↕	.032 × 2 × 2	↕	↕	
	-15	↕		CLIP	↕	↕	↕	.032 × 2 × 3	↕	↕	
	-13	↕		ZEE	↕	↕	↕	.032 × 5 × 9	↕	↕	
	LDW280-18489-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 × 4 × 10	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
T6	AL ALLOY HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18489

SCALE NONE SHEET 2.00

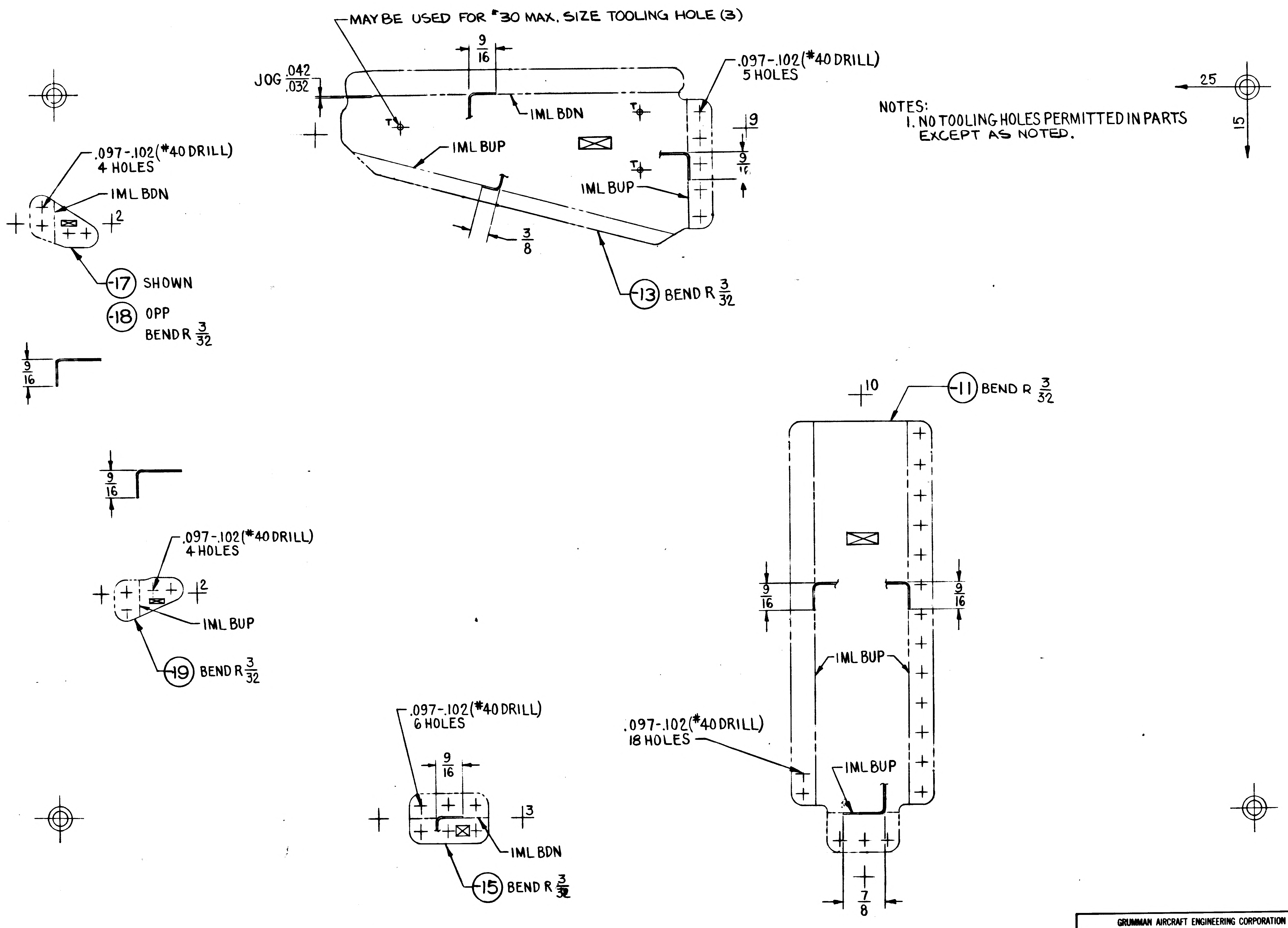
ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


MAY BE USED FOR #30 MAX. SIZE TOOLING HOLE (3)
JOG .042/.032
9/16
IML BDN
IML BUP
.097-.102 (#40 DRILL) 5 HOLES
9
9/16
IML BUP
3/8
-13 BEND R 3/32
25
15
.097-.102 (#40 DRILL) 4 HOLES
IML BDN
2
-17 SHOWN
-18 OPP
BEND R 3/32
9/16
9/16
.097-.102 (#40 DRILL) 4 HOLES
2
IML BUP
-19 BEND R 3/32
10
-11 BEND R 3/32
9/16
9/16
IML BUP
.097-.102 (#40 DRILL) 18 HOLES
IML BUP
7/8
.097-.102 (#40 DRILL) 6 HOLES
9/16
3
IML BDN
-15 BEND R 3/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18489
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18489

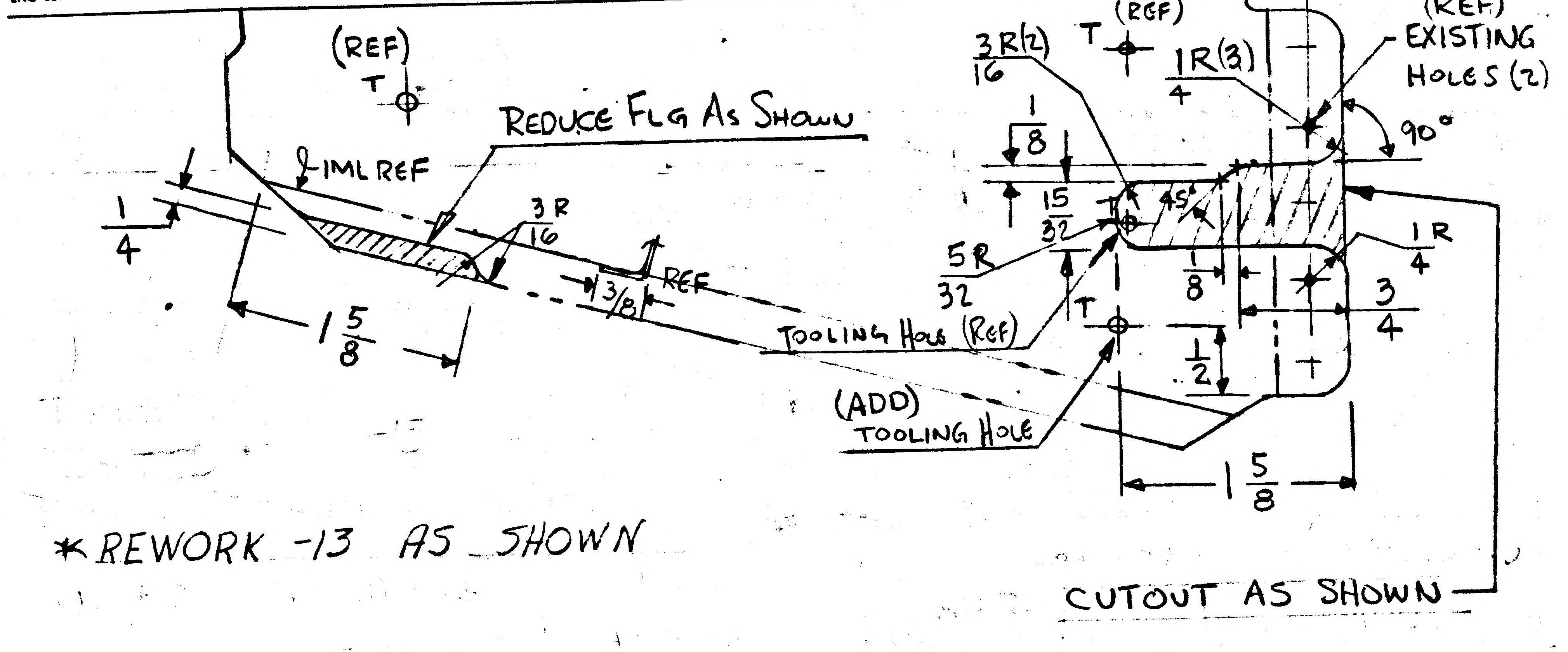
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING OR

ENG 32.1 REV 3-65

DWG. NO. LDW280-18489 | EO NO. A1
CONTROL INFO NO. LDW280B2494


(REF)
T
REDUCE FLG AS SHOWN
℄ IML REF
1/4
3R/16
1/8 REF
1 5/8
3R/16 (2)
T (REF)
1R/4 (3)
(REF) EXISTING HOLES (2)
90°
1/8
15/32
45°
5R/32
1R/4
1/8
3/4
TOOLING HOLE (REF)
T
1/2
(ADD) TOOLING HOLE
1 5/8
*REWORK -13 AS SHOWN
CUTOUT AS SHOWN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1433 CCA 586 PKG 13	(5)

REASON FOR EO: ADD PROVISIONS FOR SEQ BAY DOOR CABLE RUNS.

DESCRIPTION OF EO: ON-13, TRIMMED FLG 3/16 × 1 5/8 & ADDED 15/32 × 1 5/8 CUTOUT

GAEC EO RELEASE: JK 3/14/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT (70)		
LM	LM-4 (34)	THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		JMS				WB		JAP	
DATE		3/11/68			3/11/68	3/12/68		3/11/68	3-13-68
	G	VD1							

PRIORITY: C

DRAWING TITLE: CHANNEL D/S SEQ BAY UPPER DECK-CABLE BRKT SUP

DRAWING NO.: LDW280-18489

EO NO.: A1

3-8-68 ISSUED BY J. LANG / P. THORJUSEN X1153 SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 950
CONTROL INFO NO. LDW280B 3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65)REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW 280-18374-19		SEE DWG	4	A2 ✓
-21			1	
-23			1	
-25			1	
-18374-27			1	
-18375-11			1	A2 ✓
-12			1	
-13			2	
-14			2	
-15			2	
-17			4	
-18375-19			1	
-18458-11			1	A4 ✓
-13			1	
-17			1	
-19			1	
-18458-23			1	
-18460-21			1	A3 ✓
-23			1	
-25			1	
-17			1	
-18460-19			1	
-18461-21			1	A4 ✓
-22			1	
-13			2	
-15			2	
-17			1	
-18461-19			1	
-18469-11			1	A1 ✓
-13			2	
-15			2	
-17			2	
-18469-19			2	
-18470-11			1	A3 ✓
-18470-13			1	
LDW280-18470-15		SEE DWG	1	
LDW280-18470-19		SEE DWG	1	
LDW280-18470-21		SEE DWG	1	

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489 -11		SEE DWG	1	A2 ✓
-13			1	
-15			1	
-17			1	
-18			1	
-18489-19			1	
-18506-11			1	A1
-13			1	
-15			1	
-17			1	
-18506-19			2	
-18513-11			1	A2
-13			1	
-15			1	
-17			1	
-18513-19			1	
-18560-11			1	A1
-13			1	
-15			1	
-17			1	
-18560-19			1	
-18561-11			1	A2
-13			1	
-15			1	
-17			1	
-18561-19			1	
-71512-11			1	A1
-13			2	
-15			1	
-17			1	
-71512-18			1	
M17884-13			1	A5
M17885-13			1	A3
M17890-11			1	A2
M17969-11			1	A1
M17970-11			1	A1
M17971-11			1	A1
M17972-11			1	A1
LDW280M17973-11		SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65)REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65)REQMTS

GAEC C EO RELEASE: JK 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	JHS						
DATE	5/13/68			5-13-68	5/13/68	5/13/68	5-17-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487 ✓	A4	
-18488 ✓	B1	
-18489 ✓	A3	
-18490	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM * [illegible]

GAEC EO RELEASE: JK 4/18 [illegible]

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/2/69			4-2-69	4/18/69		4/9/69	4/14
	VUI							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1358

052669 ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1554
CONTROL INFO NO. LDW 280B 8118

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18478	SEE DWG	A4
✓ 487		A5
✓ 489		A4
490		B2
492		A3
500		A3
505		A5
LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: S/B 8-13-69; JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY	PGT				N		Bauman	
DATE	7-29-69			7/29/69	8-2-69		8/7/69	8/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1650
CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY.	CHG NO.
LDW 280 -18374	SEE DRAWING	LDW280-54679	A6
-18375		-54679	A6
-18513		-54679	A8
-18489		-54679	A5
-18460		-54679	A6
-18461		-54679	B2
-18469		-54679	A4
-18470		-54679	A6
-18506		-54679	A5
M 17884		-54679	B2
-18560		-54679	A5
LDW 280 -18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: SAB 8-26 JK 8/29/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PSA				W/A			
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/21/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1650

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1866

CONTROL INFO NO. L' W280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280-			SEE DWG.
✓ -18374-19(4) **	B1	*LDW280-54679	
✓ -18375-12,-17(4),-19 **	A8		
✓ -18489-11,-13,-15(2),-17,-18,-19 **	A6		
-18460-17,-19,-21,-23,-25 **	A8		
-18461-13(2),-15(2),-19,-21,-22 **	B4		
-18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
-18470-11,-13,-15,-19,-21 **	A7		
M17884 -13-1(2) **	B3		
LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

GAEC EO RELEASE ②

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~
APPROVED BY	PJT				NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO. LEO280

EO NO. 1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18490 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23519	DVT (70)	1
LFM127	LDW280-23519	LTA-8(18)	1
LM	LDW280-23519	LM-5/R(65)	1
	LDW280-23519	LM-15(45)	1
	LDW280-23519	LM-14(44)	1
	LDW280-23519	LM-13(43)	1
	LDW280-23519	LM-12(42)	1
	LDW280-23519	LM-11(41)	1
	LDW280-23519	LM-10(40)	1
	LDW280-23519	LM-9(39)	1
	LDW280-23519	LM-8(38)	1
	LDW280-23519	LM-7(37)	1
	LDW280-23519	LM-6(36)	1
	LDW280-23519	LM-5(35)	1
	LDW280-23519	LM-4(34)	1
LM	LDW280-23519	LTA-3(13)	1

PART NO. LDW280-18490-11&13

GAEC SCH NO. 50

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00	1.10	2.00	3.00
REV	A	A		A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REF INFO A

PRIM NO. 207

ME-1A 4/20/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2011 (CCA668) ok

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	R.SVOBODA 11-8-67	RELIABILITY
LAYOUT BY	J.CLARK	
CHECKED BY	D.FASS 11-8-67	
GR.LEADER	11-27-67	
VEH DES INT	11/30/67	
STRUCTURES	NM 12/11/67	PROJ ENGR 12/13/67
STRUCTURES	TER 12/11	REL GROUP 12/13/67
WEIGHTS		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE ~ QUAD IV
EJECTION MECHANISM

SIZE B | CODE IDENT NO. 26512 | LDW280-18490 A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

C.D.R 12-08-67

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.19,3							INC EO A1, ADDED SH 1.10	LTA-3(13) LM-4(34) THRU LM-15(45)			G. DURYEA 4-9-69	L.D.	4-22-69
	2	1.10,3							INC EO A2	LTA-3(13) LM-4(34) THRU LM-15(45)					
	3	1, 1.10							INC LEO280-940	TM-5/R(65)					
	4	1.00, 1.10		LFM127					INC LEO280-941	LTA-8(18)					
	5	1.00, 1.10		Ⓡ					INC LEO280-1019	DVT (70)		H.D.			

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18490	A Ⓡ
SCALE NONE			SHEET 1.10

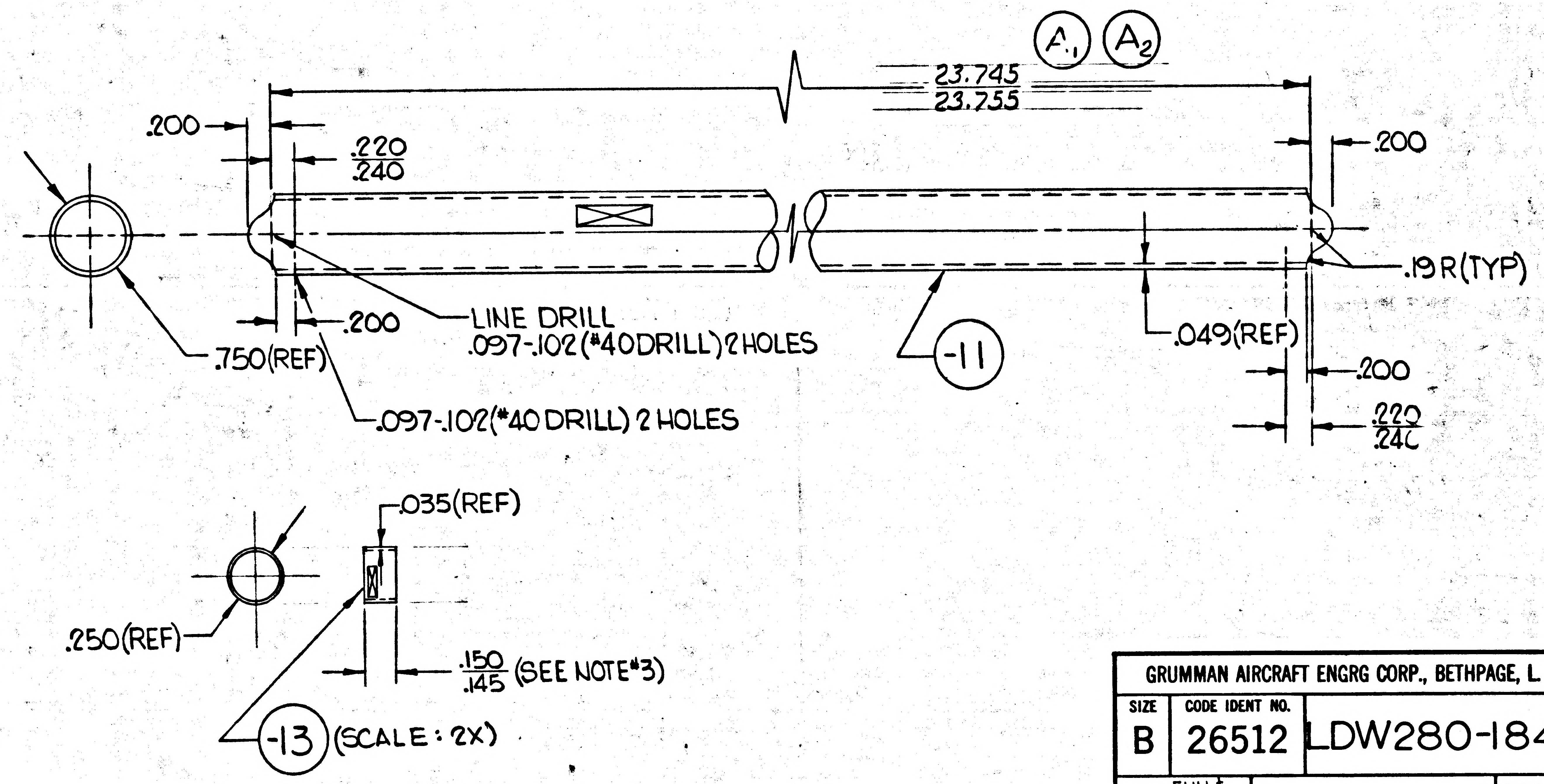
ENG 77.16 3-66

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. APPLY DRY FILM LUBRICANT PER LSP14-10200 ON ALL SURFACES OF -13.
3. DIMENSIONS TO BE MET BEFORE APPLYING DRY FILM LUBRICANT.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓


A1
A2
23.745
23.755
.200
.220
.240
.200
.750(REF)
.200
LINE DRILL
.097-.102(#40 DRILL) 2 HOLES
.097-.102(#40 DRILL) 2 HOLES
-11
.049(REF)
.19 R(TYP)
.200
.220
.240
.035(REF)
.250(REF)
.150
.145 (SEE NOTE #3)
-13 (SCALE: 2X)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18490	A
SCALE FULL & NOTED		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18490-13	E	COLLAR	AL ALLOY TUBING	WW-T-700/3	2024-T3	.250 OD×.035× 1/2	NOTE 2	88	
		LDW280-18490-11	E	STRUT	AL ALLOY TUBING	WW-T-700/3	2024-T3	.750 OD×.049×25 7/8	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18490

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1358
CONTROL INFO NO. LDW280B 7437

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477 ✓	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487 ✓	A4	
-18488 ✓	B1	
-18489 ✓	A3	
-18490 ✓	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/18/69		4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1358

052869 ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1554
CONTROL INFO NO. LDW 280B 8118

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18478	SEE DWG	A4
✓ 487		A5
✓ 489		A4
✓ 490		B2
492		A3
500		A3
505		A5
LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 36 ; 37

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SRB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY	PGF				M			Bauman
DATE	7-29-69			7/29/69	8-2-69		7/?/69	8/15/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280

EO NO. 1781

CONTROL INFO NO. LDW280B7934

FOR*, N/A LDW280-23519 DELETE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF

DWG NO.*	DASH NO.*	DWG TITLE	CHG NO.
LDW280-18477	-11	SEE DWG	A5
-18490	-11 & -13		B3
-18507	-15		B3
LDW280-18475	-15	SEE DWG	B7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 72

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR*, DELETED LM-10(40) THRU LM-14 (44) & LTA-11(23) EFF N/A LDW280-23519

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44) &	LTA-11(23)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY					WRH			JK
DATE	12/9/69			12/5/69	12/10/69		12/11/69	12/12/69

PRIORITY C

DRAWING TITLE: NOTED

DRAWING NO. LEO280

EO NO. 1781

CDR 12-12-69

ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18491

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	GAEC SCH NO.	REQD PER MODULE OR END ITEM	PART NO.
LM	LDW280-23589	LTA-3 (13)	50	4	LDW280-18491-13,-15,-17,&-19
LM	LDW280-23589	LTA-3 (13)	50	2	LDW280-18491-11,

WORK PACKAGE FUNCTION # 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1	2	3						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 | VK(001) | MP-16 12/18/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
1/32 .020 1/2°
ORIG DWG AUTH D
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 58C
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A.M. Wilson 11/29/67	STRUCTURES	W/H 12/15/67
LAYOUT BY	A.M. Wilson 11/29/67	STRUCTURES	12/14
CHECKED BY DWG	A.F. Manzella 12-2-67		
GP LEADER	Thorjusen 12-2-67		
VDI	Steadwood 12/2/67	PROJ ENGR	Pusateri 12/2/67
		REL GROUP	12/18/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

GUSSET -
DESCENT STAGE - APOLLO LUNAR
SCIENTIFIC EQUIP. PACKAGE SIMULATOR

SIZE B | CODE IDENT NO. 26512 | LDW280-18491

SCALE NONE | SHEET 1 OF 3

CDR 12-4-67

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18491-19	E		GUSSET	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 3	—	88	
	-17	↕		GUSSET	↕	↕	↕	.050 x 2 x 4	—	↕	
	↕ -15	↕		STRAP	↕	↕	↕	.080 x 1 x 11	—	↕	
	-13	↕		GUSSET	↕	↕	↕	.050 x 2 x 3	—	88	
	LDW280-18491-11	E		GUSSET	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 2 x 4	—		

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18491

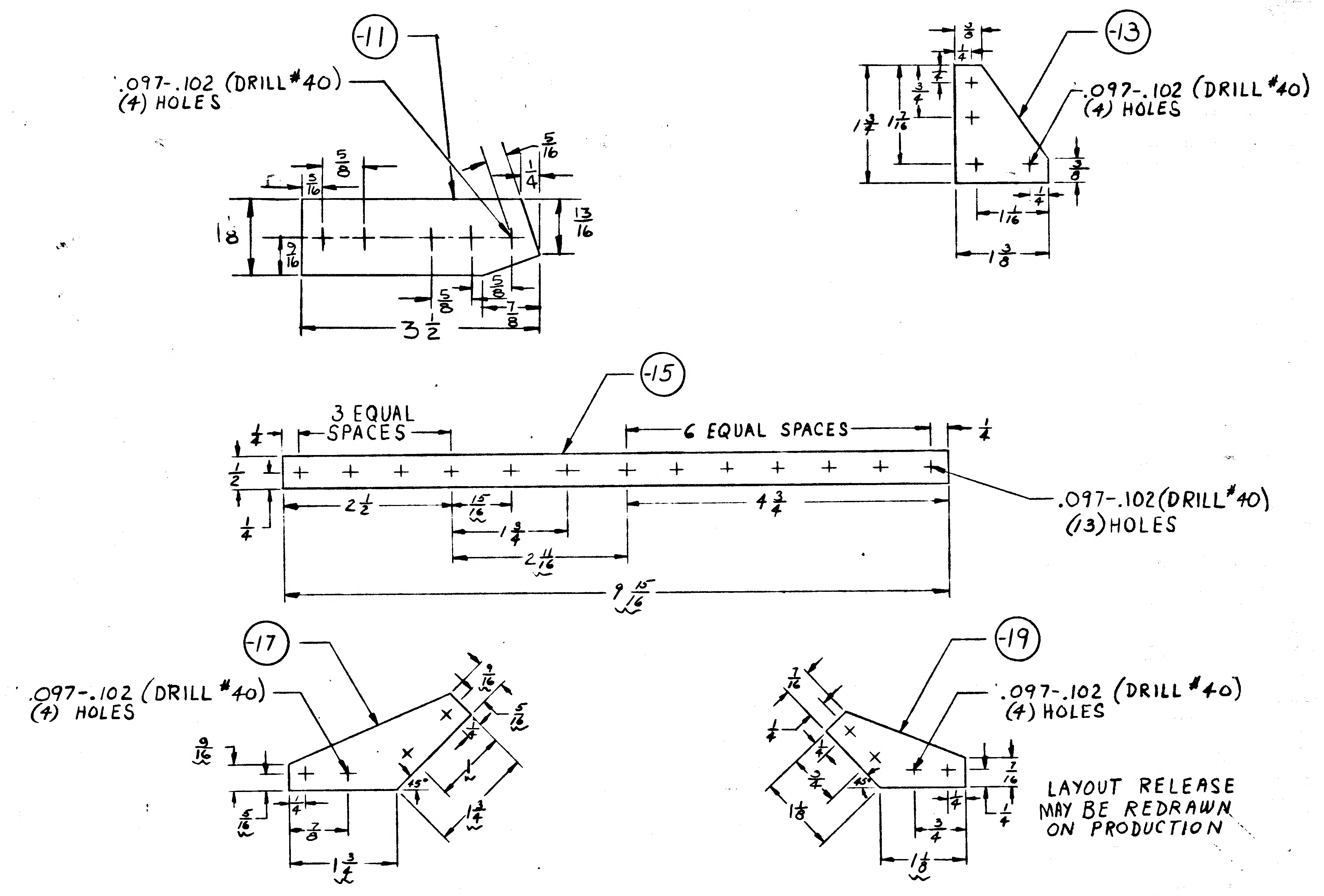
SCALE NONE

SHEET 2 of 3

ENG 77.2 5-64

01

NAS 9-1100


-11
.097-.102 (DRILL #40)
(4) HOLES
-13
.097-.102 (DRILL #40)
(4) HOLES
-15
3 EQUAL SPACES
6 EQUAL SPACES
.097-.102 (DRILL #40)
(13) HOLES
-17
.097-.102 (DRILL #40)
(4) HOLES
-19
.097-.102 (DRILL #40)
(4) HOLES
45°

LAYOUT RELEASE
MAY BE REDRAWN
ON PRODUCTION

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS

LM	GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK		
	SIZE C	CODE IDENT NO. 26512	LDW280-18491
MODEL OR END ITEM	SCALE NONE		SHEET 3 of 3

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1076
CONTROL INFO NO. LDW280B478/-

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22	(5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.

GAEC EO RELEASE: IC JK 8/7/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK | SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					NM			
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1076

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

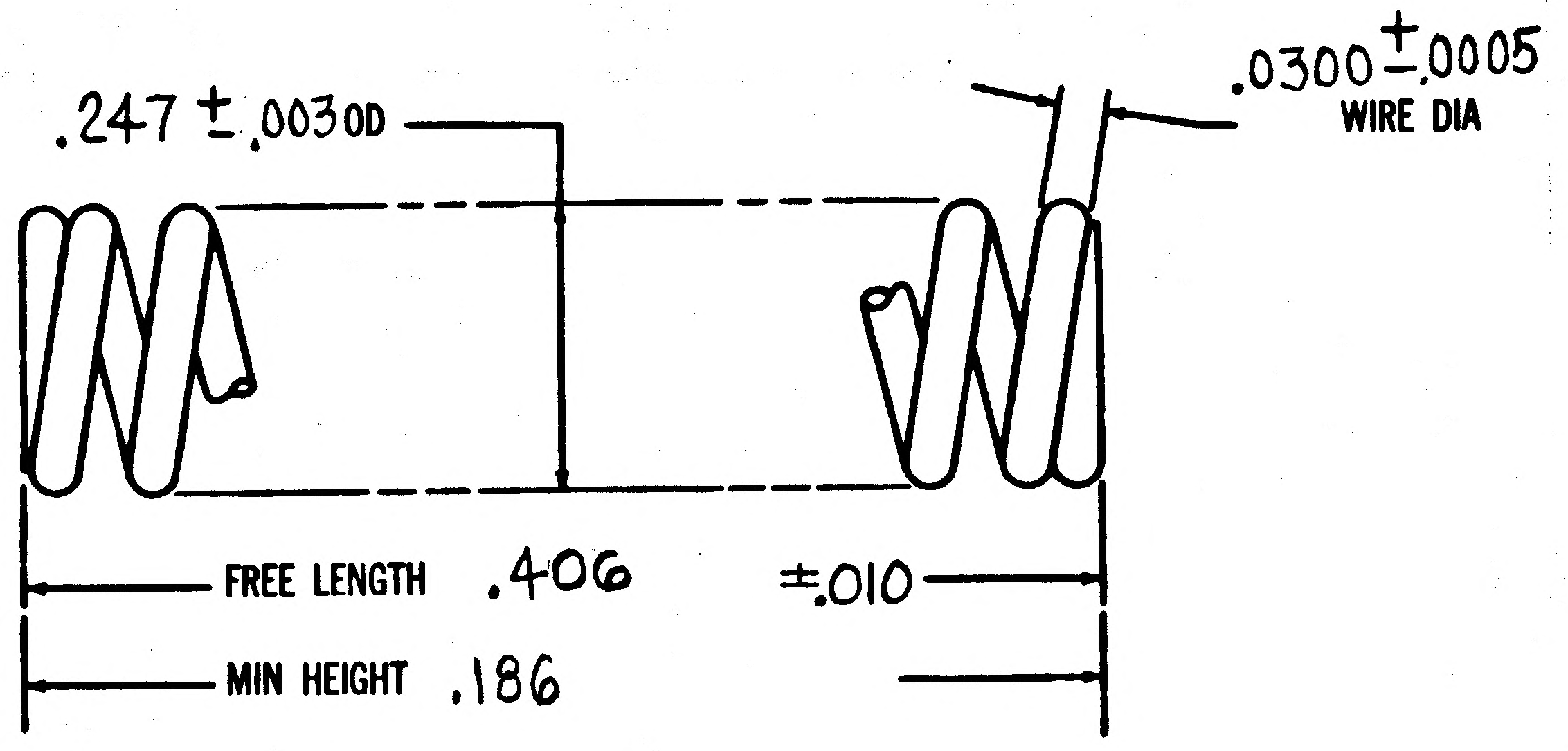
01 NAS 9-1100

ENGINEERING INFORMATION ONLY

DEFLECTION RATE: 42 LBS/INCH MAX. LOAD IN RANGE: 5 LBS

DESIGN SPRING LIFE 10,000 CYCLES AT STRESS RANGE 50 %

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	APPD ENGRG	APPD GOVT



NO. OF ACTIVE COILS: 3	TOLERANCE ON PROPORTIONATE LOAD ± 10% UP TO FROM SOLID HEIGHT
NO. OF TOTAL COILS: 5	SPRING TO OPERATE INSIDE OF .344 DIA; OUTSIDE OF DIA
ENDS TO BE CLOSED [redacted]	STRAIN RELIEVE AFTER FORMING. MAGNAFLUX IF WIRE DIA IS GREATER THAN .063
DIRECTION OF COILING OPTIONAL ✓	INSPECTION TEST LOAD AT .281 INCHES TO BE 5.0 LBS [redacted] ±.50LBS
	FINISH:

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18492-11	E	MUSIC WIRE	QQ-W-470	MUSIC WIRE

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54633	DSGN VERI-FICATION TEST (70)	2
		LM-15(45) THRU LM-4(34)	2
LM	LDW280-54633	LTA-3(13)	2

PART NO. LDW280-18492-11

GAEC SCH NO. 50

WORK PKG FUNCTION NO. 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS — DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

D ORIG DWG AUTH,

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 (CCA586)

OK

GRUMMAN REL INFO

PRIM NO. 207

JK(001) MP-16- 12/13/

CONTRACT NO. NAS9-1100

DRAWN BY	G.ZARCADOOLAS 12-5-67
LAYOUT BY	R.CLARK
CHECKED BY	D.FASS 12-6-67
GR LEADER	Thompson 12-7-67
VEH DSGN INT	12/8/67
STRUCTURES	12/9/67
STRUCTURES	12/9
WEIGHTS	
PROJ ENGR	12/9/67
RELEASE	12/13/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DESCENT STAGE-APOLLO LUNAR SCIENTIFIC
EQUIP PACKAGE-STRAP OPERATION

SIZE B CODE IDENT NO. 26512 LDW280-18492 (-)

SCALE NONE SHEET 1.00 OF 1

ENG 77.12 9-64

CDR 12/4/67

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 961
CONTROL INFO NO. LDW 280B 3377

FOR THE FOLLOWING PART NO'S ADD TM-5/R(65) REQMTS FOR THE N/A'S INDICATED FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	N/A'S & QTY REQD/ASSY LDW280-54633	LDW280-54566	LDW280-54702	CHG. NO.
LDW280M17829-13	SEE DWG.	2			B1
M17865-13		1			A2
-18418-15		2			A4
-18492-11		1			A1
-18500-11		1			A1
M17837-11		2			A2
M17864-11		1			A3
M17866-11		1			A1
M17867-11		1			A2
-18362-17			1		A5
-18362-19			1		
-18362-21			1		
-18362-25			1		
M17780-11			1		A1
-17880-15			1		B2
-17880-19			1		
-17878-19			1		B3
-17623-21			2		C2
-18417-11			1		A1
-18363-11			1		A1
-18363-13			1		
-18363-15			1		
-18363-17			5		
-18363-19			1		
M17624-1			1		B3
M17779-11			1		A4
-17739-31				2	C7
-17739-33				3	
-18283-11				1	A7
M17544-9				1	B3
M17544-11				1	
M17670-5				1	D8
M17671-1				1	B8
M17730-11				1	A6
M17731-11				1	A6
M17732-11				1	A6
M17733-11				1	A7
LDW280M17872-11	SEE DWG.			1	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2L, 2M, 2N (5)

REASON FOR EO: ADD TM-5/R(65) REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 961

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO 280	EO NO.	1358
CONTROL INFO NO.	LDW280B 7437		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18474 ✓	A4	SEE DWG
-18475 ✓	B5	
-18477	A3	
-18478 ✓	A3	
-18486 ✓	C1	
-18487 ✓	A4	
-18488 ✓	B1	
-18489 ✓	A3	
-18490 ✓	B1	
LDW280 -18492	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG 1 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: JK 4/18 ... 29-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/2/69			4-2-69	4/18/69		4/9/69	4/14/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GSFP~~

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1358

052869 ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1554
CONTROL INFO NO. LDW 280B 8118		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW 280-18478	SEE DWG	A4	
✓ 487		A5	
✓ 489		A4	
✓ 490		B2	
✓ 492		A3	
500		A3	
505		A5	
LDW 280-18506	SEE DWG	A4	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE
8-13-69
JK 8/13/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/13/69	8/15/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~ Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1554

8-26-69
ISSUED BY G. HANSMANN X87222 SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18496

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	4 EA
PART NO. LDW280-18496-13 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	8
PART NO. LDW280-18496-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2 EA
PART NO. LDW280-18496-11, -12, & -15		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION #111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	4.57-001		
207	MP-16	12/7/67	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

± 1/32 ±.010 ±1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 CCA586

ok.

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	W. LEIFER		
LAYOUT BY			
CHECKED BY	A.F. Margella 12-1-67		
GP LEADER	Thompson 12-1-67		
VEH DES INT	12/1/67		
STRUCT	12/1/67	PROJ ENGR	12/1/67
STRUCT	12/1/67	REL GROUP	12/7/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL-BALLAST
SUPPORT, DESCENT STAGE – APOLLO
LUNAR SCIENTIFIC EQUP. PACKAGE SIMULATOR

SIZE	CODE IDENT NO.		
B	26512	LDW280-18496	—
SCALE	NONE	SHEET 1.00 OF 3	

5

ENG 77.1 12-65

CDR 12-4-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18496-19	E	PLATE	AL. ALLOY SH	QQ-A-250/12	7075-T6	.093x 3 x 3	NONE	88	
		-17		CLIP	AL ALLOY EXT	QQ-A-200/11	7075-T6511	DIE # 89475 x 1 3/4	NONE		
		-15		END CAP	AL ALLOY SH	QQ-A-250/12	7075	.050 x 4 x 5	T6		
		-13		DOUBLER			7075-T6	.080 x 3 x 32	NONE		
		-12		CHANNEL			7075	.050 x 4 x 24	T6		
		LDW280-18496-11	E	CHANNEL	AL. ALLOY SH	QQ-A-250/12	7075	.050 x 4 X 24	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18496 | (-)

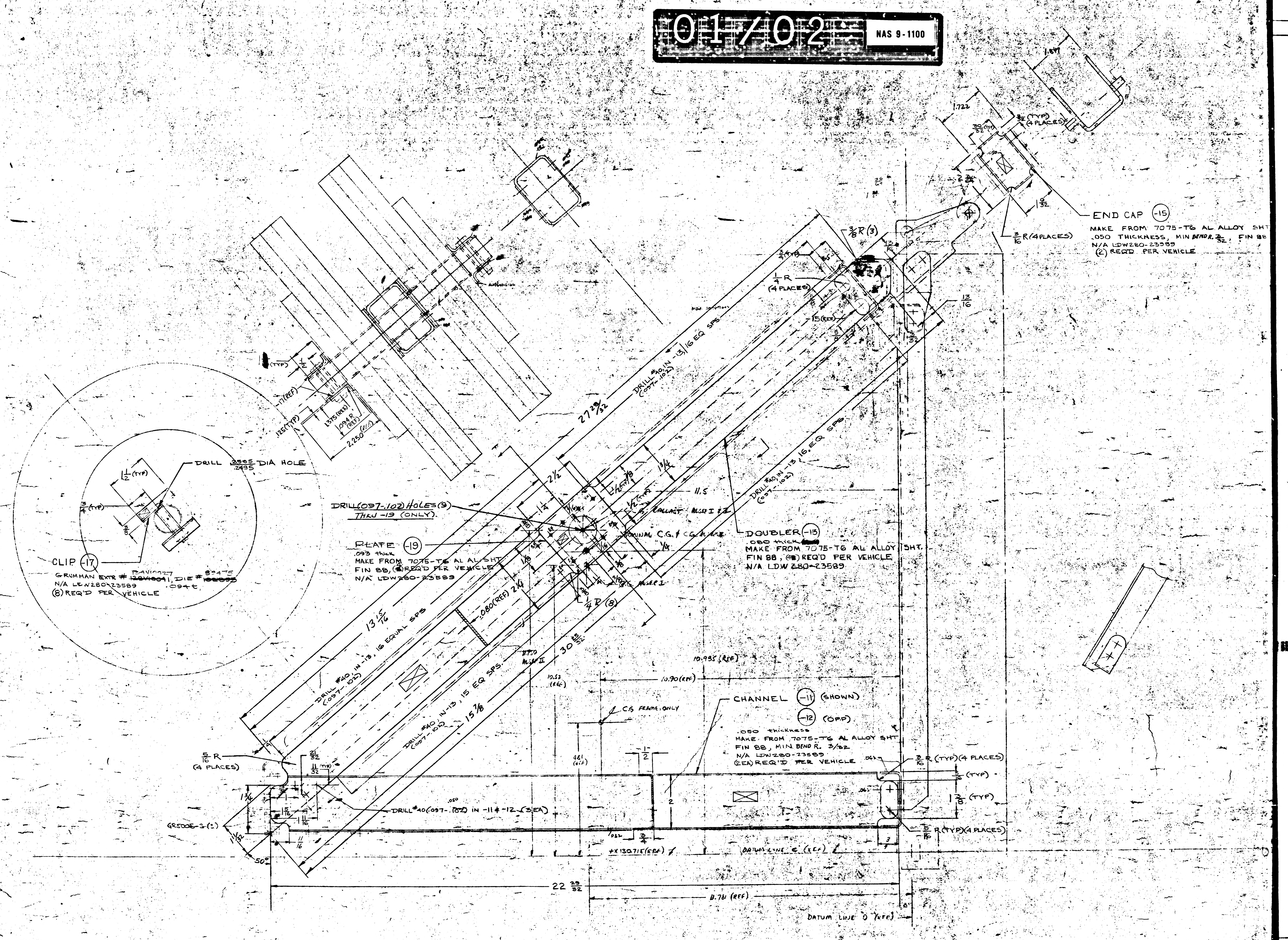
SCALE NONE | SHEET 2.00

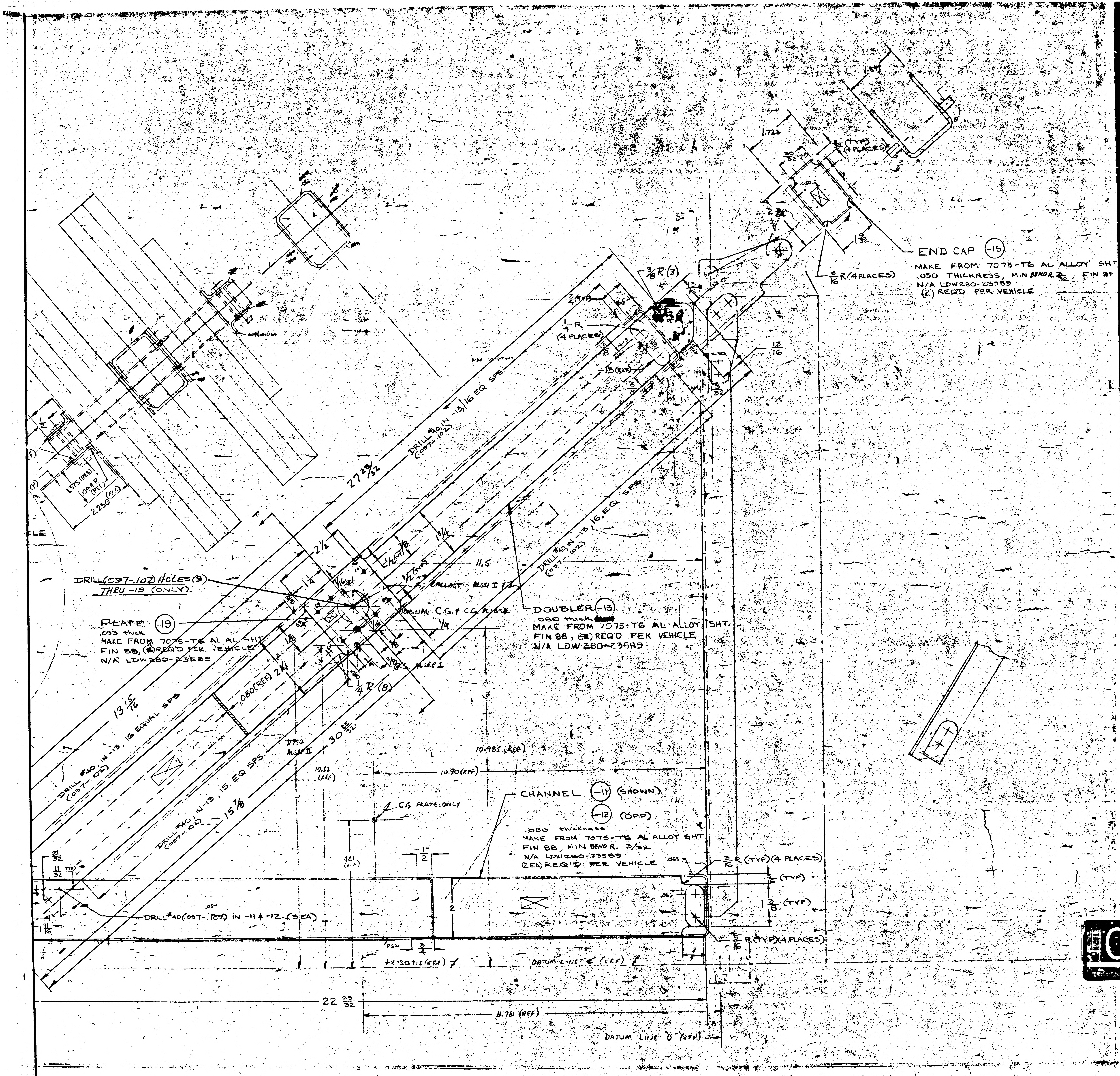
ENG 77.2 7-65

01

NAS 9-1100

01/02 NAS 9-1100


END CAP (-15)
MAKE FROM 7075-T6 AL ALLOY SHT
.050 THICKNESS, MIN BEND R. 3/32, FIN 88
N/A LDW280-23589
(2) REQD PER VEHICLE
3/16 R (4 PLACES)
1 9/32
1.722
1.847
3/8 R (3)
1/4 R (4 PLACES)
15 (REF)
13/16
27 29/32
DRILL #40 IN -13, 16 EQ SPS (097-.102)
DRILL #40 IN 13, 16 EQ SPS (097-.102)
DRILL (097-.102) HOLES (9) THRU -19 (ONLY)
PLATE (-19)
.093 thick
MAKE FROM 7075-T6 AL AL SHT
FIN 88, (4) REQ'D PER VEHICLE
N/A LDW280-23589
DOUBLER (-13)
.080 thick
MAKE FROM 7075-T6 AL ALLOY SHT.
FIN 88, (4) REQ'D PER VEHICLE
N/A LDW280-23589
NOMINAL C.G.
11.5
2 1/2
1 3/4
1/4 R (8)
.080 (REF) 2 1/4
13 15/16
DRILL #40 IN 13, 16 EQUAL SPS (097-.102)
DRILL #40 IN -13, 15 EQ SPS (097-.102)
15/8
30 23/32
DRILL .2505/.2495 DIA HOLE
1 1/2 (TYP)
3/4 (TYP)
3/8
CLIP (-17)
GRUMMAN EXTR # 134V10027, DIE # 89475
.094 t
N/A LDW280-23589
(8) REQ'D PER VEHICLE
.125 (TYP)
.17 (REF)
1.375 (REF)
.093 R (REF)
2.250 (REF)
10.995 (REF)
10.90 (REF)
10.52 (REF)
C.G. FRAME ONLY
CHANNEL (-11) (SHOWN)
(-12) (OPP)
.050 thickness
MAKE FROM 7075-T6 AL ALLOY SHT
FIN 88, MIN BEND R. 3/32
N/A LDW280-23589
(2EA) REQ'D PER VEHICLE
3/16 R (TYP) (4 PLACES)
3/16 (TYP)
1 3/8 (TYP)
5/16 R (TYP) (4 PLACES)
5/16 R (4 PLACES)
21/32
11/32
1 3/4
1 1/2
11/16
5/16
GR5006-3 (2)
DRILL #40 (097-.102) IN -11 & -12 (3 EA)
1/2
2
3
50°
+X 130.715 (REF)
DATUM LINE C (REF)
22 23/32
11.781 (REF)
DATUM LINE 0 (REF)


END CAP (-15)
MAKE FROM 7075-T6 AL ALLOY SHT
.050 THICKNESS, MIN BEND R. 3/32, FIN 88
N/A LDW280-23589
(2) REQ'D PER VEHICLE
3/16 R (4 PLACES)
3/8 R (3)
1/4 R (4 PLACES)
1.722
1 9/32
13/16
27 29/32
DRILL #40 IN -13, 16 EQ SPS (.097-.102)
2 1/2
1 1/4
1 3/4
11.5
DRILL (.097-.102) HOLES (9) THRU -19 (ONLY)
PLATE (-19)
.093 thick
MAKE FROM 7075-T6 AL AL SHT
FIN 88, (4) REQ'D PER VEHICLE
N/A LDW280-23589
DOUBLER (-13)
.080 thick
MAKE FROM 7075-T6 AL ALLOY SHT.
FIN 88, (4) REQ'D PER VEHICLE
N/A LDW280-23589
NOMINAL C.G. + C.G. ALIGN
1/4 R (8)
.080 (REF) 2 1/4
13 15/16
DRILL #40 IN -13, 16 EQUAL SPS (.097-.102)
DRILL #40 IN -13, 15 EQ SPS (.097-.102)
30 23/32
15 7/8
10.935 (REF)
10.90 (REF)
C.G. FRAME ONLY
CHANNEL (-11) (SHOWN)
(-12) (OPP)
.050 thickness
MAKE FROM 7075-T6 AL ALLOY SHT
FIN 88, MIN BEND R. 3/32
N/A LDW280-23589
(2EA) REQ'D PER VEHICLE
3/16 R (TYP) (4 PLACES)
5/16 (TYP)
1 3/8 (TYP)
5/16 R (TYP) (4 PLACES)
DRILL #40 (.097-.102) IN -11 & -12 (3 EA)
1.575 (REF)
.094 R (REF)
2.250 (REF)
+X 1307.15 (REF)
DATUM LINE "C" (REF)
22 29/32
11.781 (REF)
DATUM LINE "O" (REF)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

PRINTING INFO ONLY

LDW280-18496

NOTES

1. ALL OUTSIDE RADII OPTIONAL
2. ALL INFORMATION NOT REQ'D FOR MFG OF PART IS FOR REF ONLY
3. NO TOOLING HOLES PERMITTED IN PARTS

LAYOUT RELEASE MAY BE REDRAWN ON PRODUCTION FORMAT.

02/02

NAS 9-1100

LDW280-18496

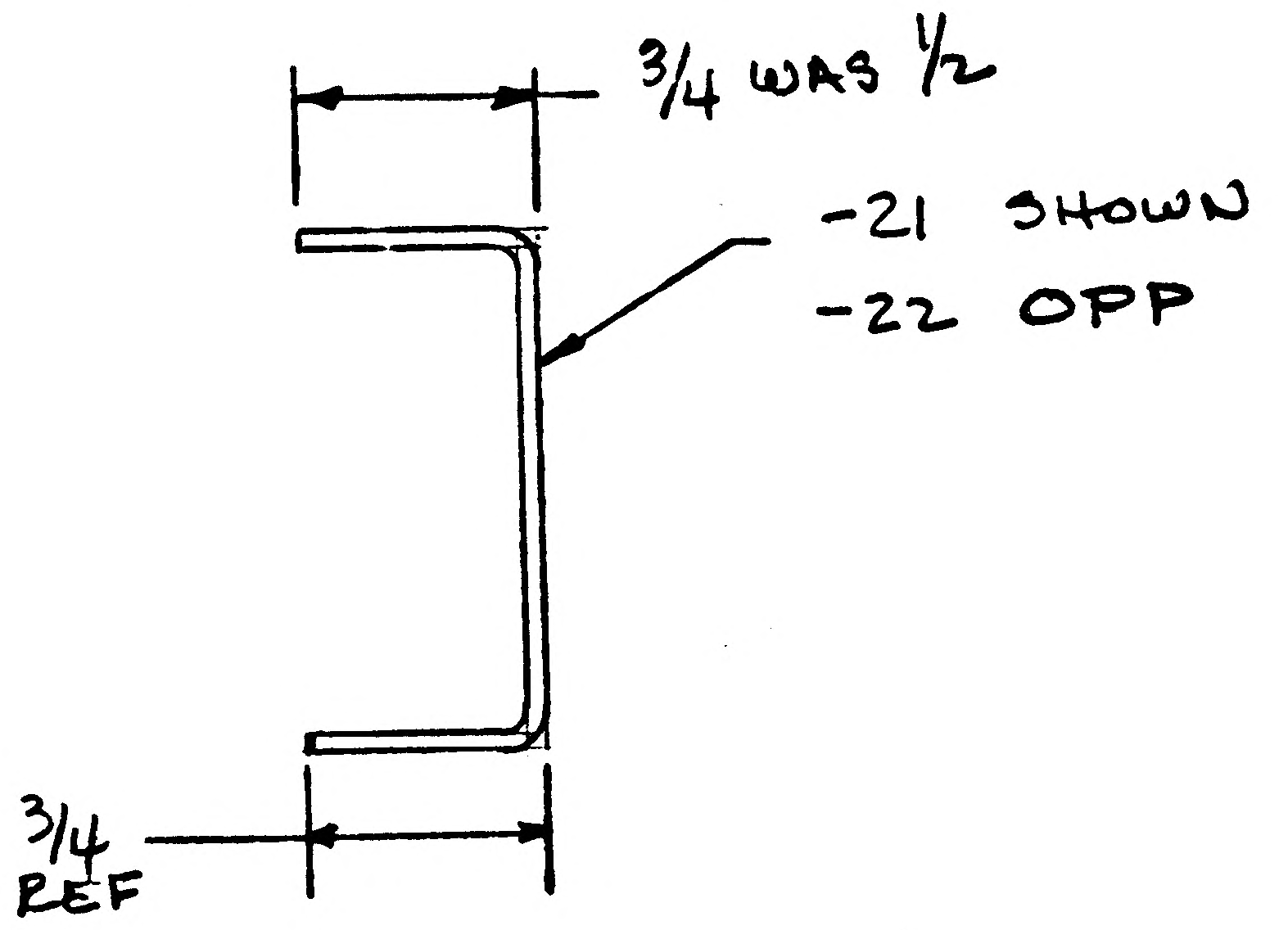
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE K	CODE IDENT NO. 26512	LDW280-18496
MODEL OR END ITEM	SCALE	SHEET 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. NOTED		EO NO. —
CONTROL INFO NO. LM-2- 4352		

CREATE -21, -22 IDENTICAL TO -11, -12 EXCEPT AS SHOWN.
IN FLD, B/M & M/B DELETE -11, -12; ADD -21, -22 FOR LTA-3D(13)



NHA DESC	DWG. NO.	E.O. NO.
	✓ LDW280-18496	A1
NHA DESC	NHA NO.	E.O. NO
IN-18-3, FOR-58-7 LDW280-18496-21,-22 WAS-11,-12	LDW280-23589	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL FLANGE LENGTH REQD TO PROVIDE PROPER E.D. ON ASSY	IN FLD, B/M & M/B DELETED LDW280-18496 -11, -12 & ADDED -21, -22	(2) VK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D(13)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
			-11 -12	DATE	1/13/68			—	1/10/68	1/10/68	1/13/68	1-11-68
REVISE DWG ✓	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL- BALLAST SUPPORT- D/S- ALSEP SIMULATOR	NOTED	—

ISSUED BY LIAISON C. Farley x3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1076
CONTROL INFO NO. LDW 280 B478/

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

01
NAS 9-1100

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 1433 CCA 586 PKG 22	(5)

REASON FOR EO	DESCRIPTION OF EO
SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST	ON (*) ADDED DVT (70) REQMTS.

GAEC EO RELEASE: JK 8/1/8 IC

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD.	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAB			GBH	J NM		JA	LM
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1076

7-31-68
ISSUED BY J. TAVARES X1392 SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 - EV 3-65

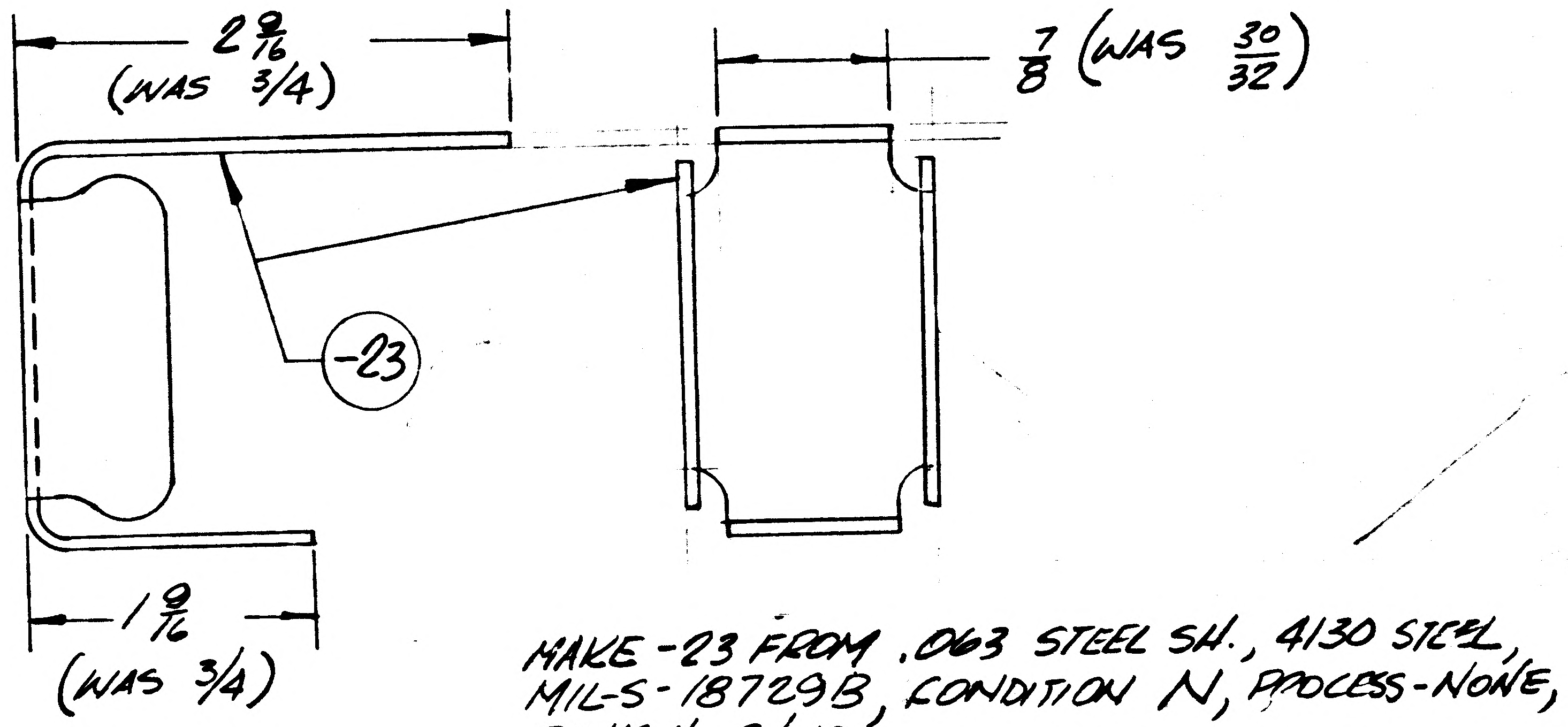
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18496 | EO NO. A3

CONTROL INFO NO. LDW280B 4775

ADD -23, (IDENTICAL TO -15 EXCEPT AS NOTED), N/A LDW280-23589
(2) REQD/MOD., B.R. 1/16



$2\frac{9}{16}$ (WAS 3/4)
$\frac{7}{8}$ (WAS $\frac{30}{32}$)
-23
$1\frac{9}{16}$ (WAS 3/4)

MAKE -23 FROM .063 STEEL SH., 4130 STEEL, MIL-S-18729B, CONDITION N, PROCESS-NONE, FINISH-2.10

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22 (5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST

DESCRIPTION OF EO: ADDED -23

GAEC EO RELEASE: R C JK 8/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT REQD.		DATE	7/27/68			G.H. 7/26/68	8-2-68		8/3/68	8-16-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: CHANNEL ~ BALLAST SUPPORT ~ D/S ~ APOLLO LUNAR SEQ. PKG. SIMULATOR

DRAWING NO.: LDW280-18496

EO NO.: A3

7-31-68
ISSUED BY J. TAVARES X1392 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

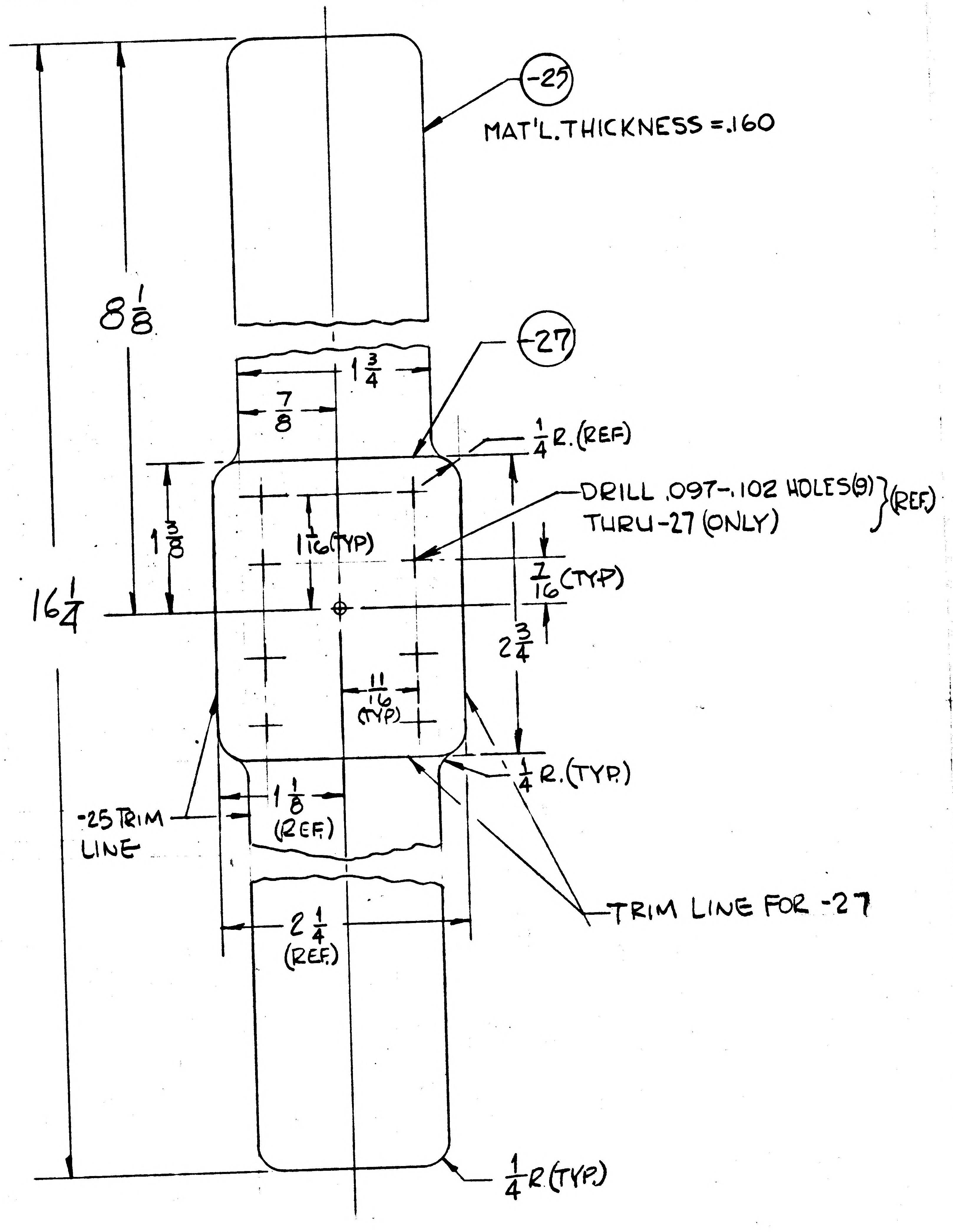
01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18496 EO NO. A4
CONTROL INFO NO. LDW280B4997

ENG 32.2 REV 3-65

CREATE-25&-27(IDENTICAL TO -19 EXCEPT AS NOTED), N/A LDW280-23589,
EFF DVT(70) 4 EA/MOD


-25
MAT'L. THICKNESS = .160
$8\frac{1}{8}$
$16\frac{1}{4}$
-27
$1\frac{3}{4}$
$\frac{7}{8}$
$\frac{1}{4}$R. (REF)
DRILL .097-.102 HOLES(9) THRU-27 (ONLY) (REF)
$1\frac{3}{8}$
$1\frac{1}{16}$(TYP)
$\frac{7}{16}$(TYP)
$2\frac{3}{4}$
$\frac{11}{16}$(TYP)
$\frac{1}{4}$R. (TYP)
-25 TRIM LINE
$1\frac{1}{8}$ (REF.)
TRIM LINE FOR -27
$2\frac{1}{4}$ (REF.)
$\frac{1}{4}$R (TYP)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST

DESCRIPTION OF EO: ADDED -25 & -27

GAEC EO RELEASE (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD.; REWORK SCRAP

APPROVED BY					NM			
DATE	8/3/68			8-1-68	8-7-68		8/8/68	8-17-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: CHANNEL-BALLAST SUPPORT, D/S-APOLLO LUNAR SCIENTIFIC EQUIP. PKG, SIMULATOR

DRAWING NO.: LDW280-18496

EO NO.: A4

8-15-68
ISSUED BY J. TAVARES x1392
SECTION VDI
GROUP NO. 280 PL 25

LDW280-18497

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(12)	2 EA
PART NO. LDW280-18497-17, -15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	1 EA
PART NO. LDW280-18497-11, -12, -13, -14,		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION #111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -17
GRUMMAN REL INFO
PRIM NO. 207
JK(001)
MP-16 12/4/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586
(O.K.)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY W. LEIFER
RELIABILITY
LAYOUT BY
CHECKED BY 11-30-67
GP LEADER 11-30-67
VEH DES INT 12/1/67
STRUCT 12/5/67
STRUCT 12/5
WEIGHTS
PROJ ENGR 12/1
REL GROUP 12/13/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE-APPOLLO LUNAR SCIENTIFIC EQUIP.
PACKAGE SIMULATOR - APEX SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18497
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-4-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18497-17	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.080x4 x28	T6	88	
		-15		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.080x5 x 30	T6	88	
		-14		TEE	AL ALLOY EXTR.	QQ-A-200/11	7075-T6	DIE#(22078)x 23	NONE	88	
		-13						DIE#(22078) x23			
		-12						DIE#(22078) x 23			
		LDW280-18497-11	E	TEE	AL ALLOY EXTR.	QQ-A-200/11	7075-T6	DIE#(22078)x23	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

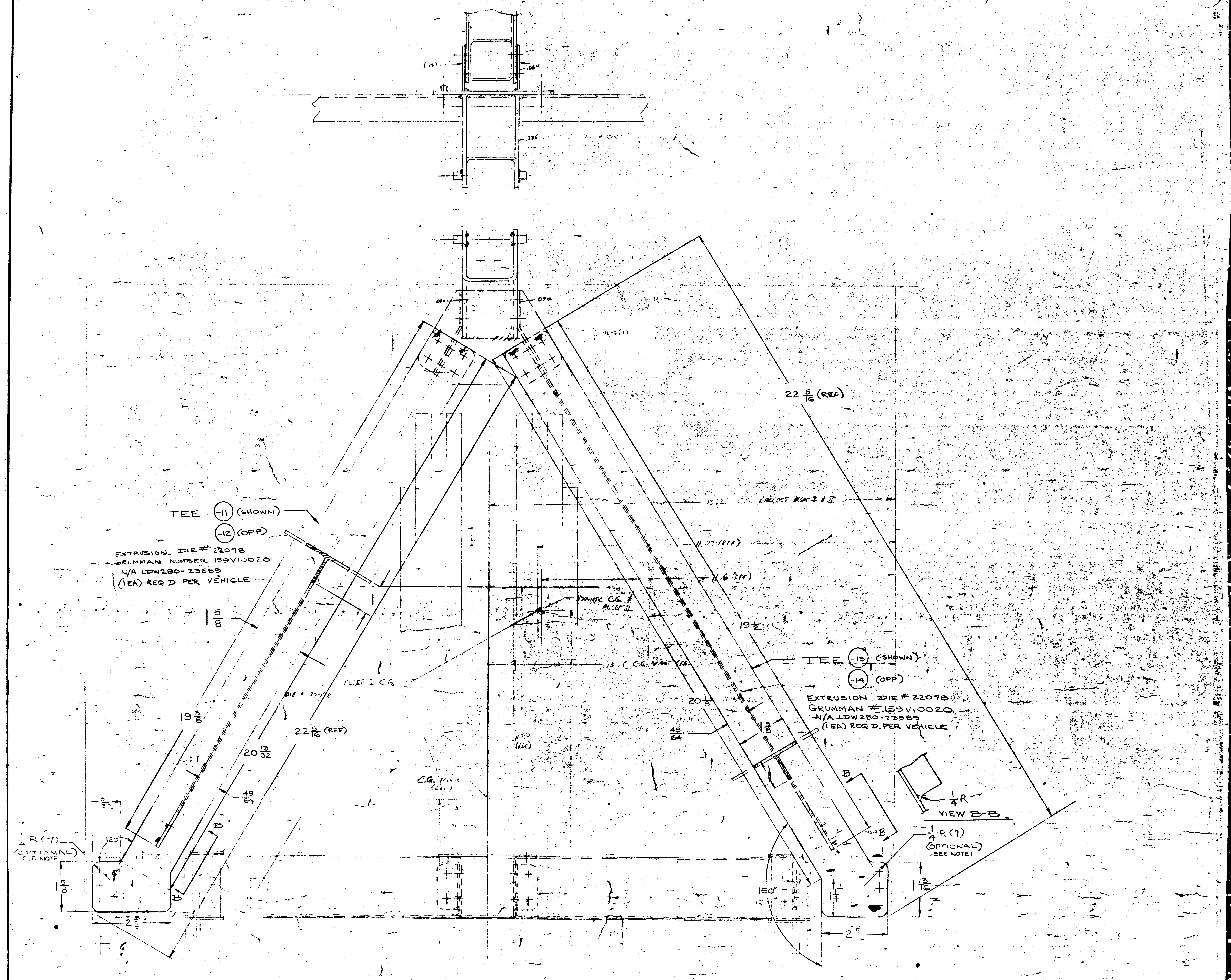
SIZE B
CODE IDENT NO. 26512
LDW280-18497

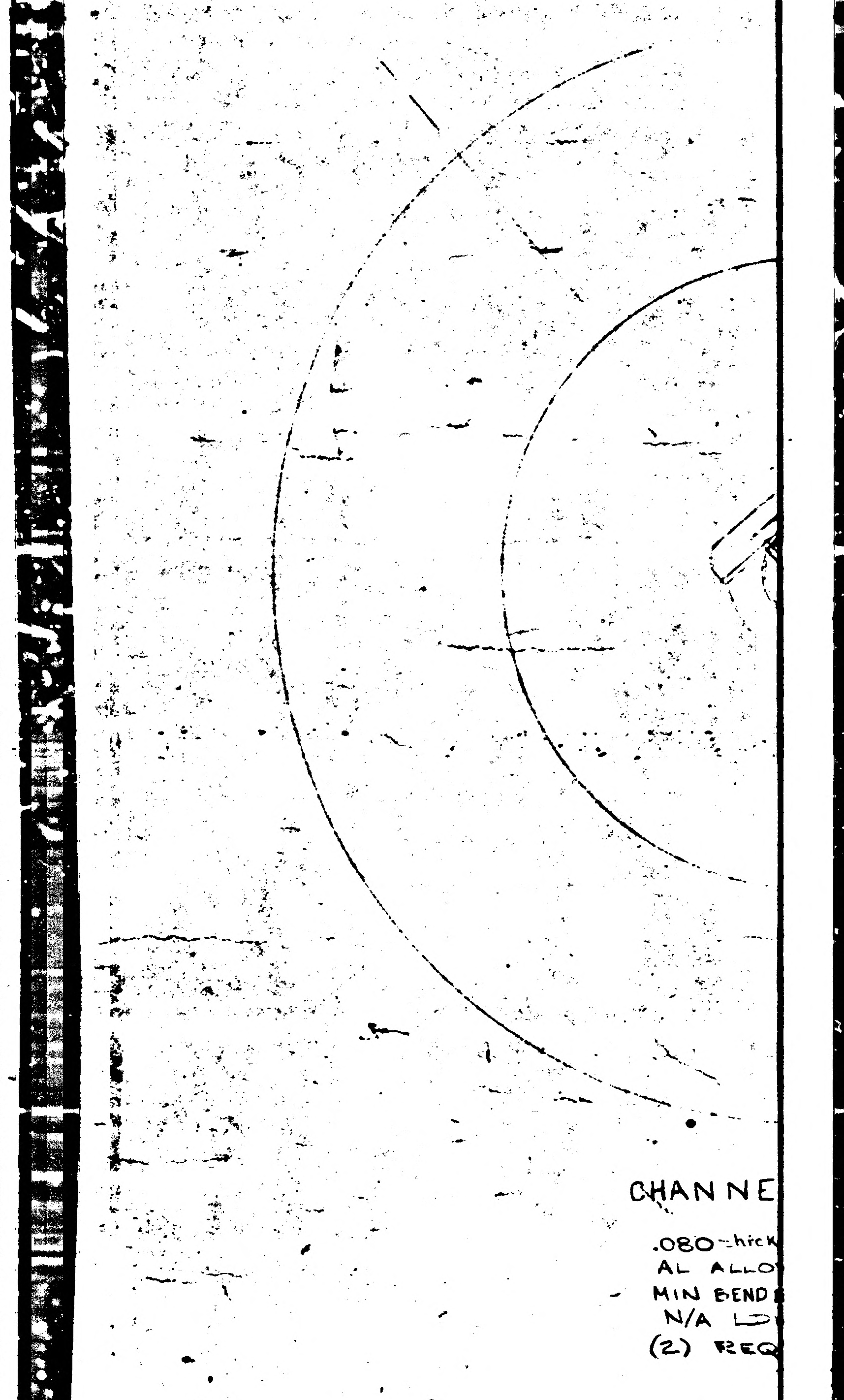
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

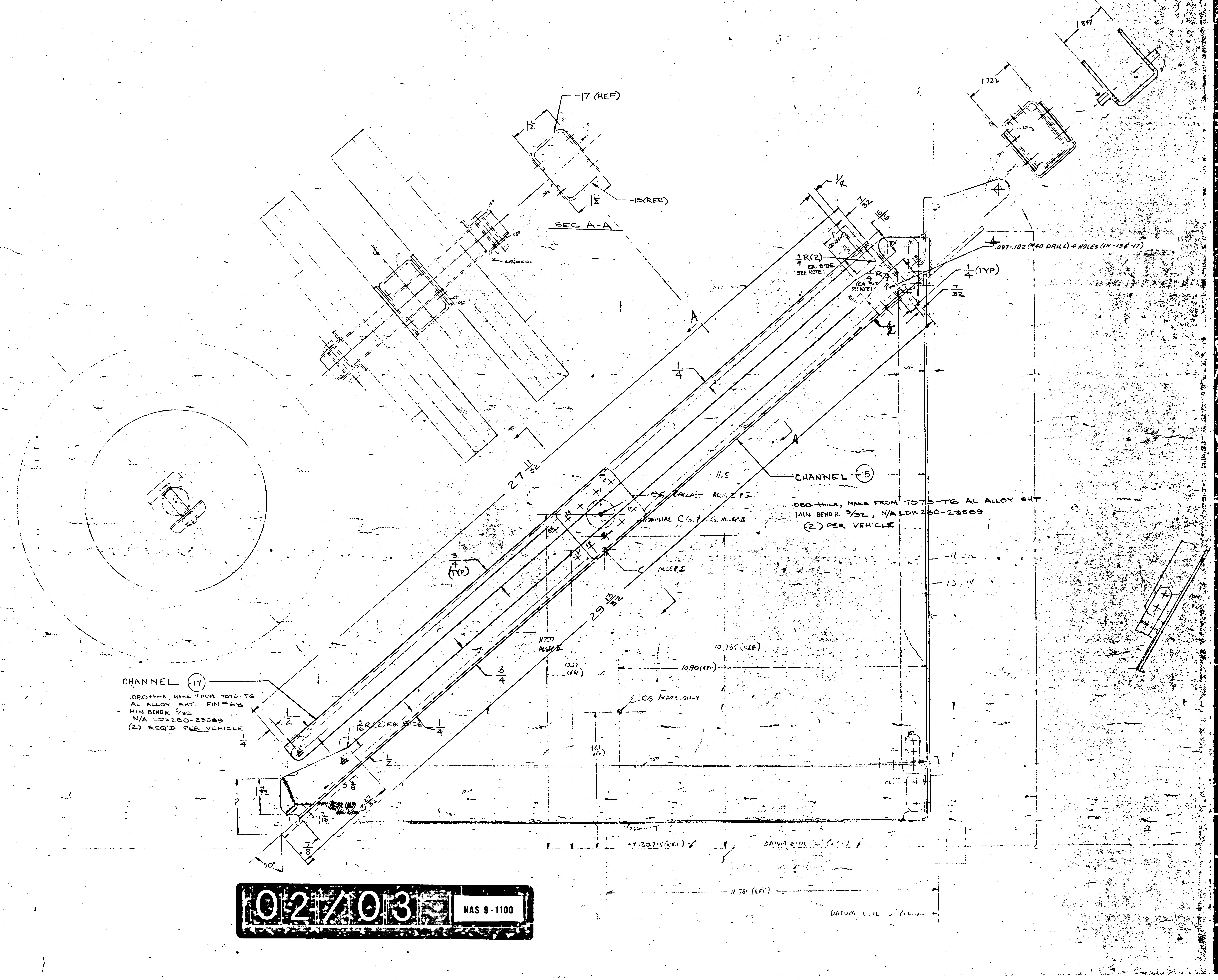
01

NAS 9-1100


TEE -11 (SHOWN)
-12 (OPP)
EXTRUSION DIE # 22078
GRUMMAN NUMBER 159V10020
N/A LDW280-23589
(1EA) REQ'D PER VEHICLE
1 5/8
1
19 3/8
20 13/32
22 5/16 (REF)
49/64
B
1/4 R (7)
(OPTIONAL)
SEE NOTE
120°
1 5/8
2 5/8
22 5/16 (REF)
19 1/2
TEE -13 (SHOWN)
-14 (OPP)
EXTRUSION DIE # 22078
GRUMMAN # 159V10020
N/A LDW280-23589
(1EA) REQ'D. PER VEHICLE
20 1/8
49/64
5/8
B
1/4 R
VIEW B-B
1/4 R (7)
(OPTIONAL)
SEE NOTE 1
150°
1 1/4
1 13/16
2 5/8
C.G.


CHANNE
.080 thick
AL ALLO
MIN BEND
N/A LD
(2) REQ

01/03
NAS 9-1100


-17 (REF)
-15(REF)
SEC A-A
A
A
CHANNEL -15
.080 thick, MAKE FROM 7075-T6 AL ALLOY SHT
MIN. BEND R. 5/32, N/A LDW280-23589
(2) PER VEHICLE
CHANNEL -17
.080 thick, MAKE FROM 7075-T6
AL ALLOY SHT., FIN #88
MIN BEND R. 5/32
N/A LDW280-23589
(2) REQ'D PER VEHICLE
27 11/32
29 13/32
1/4
3/4 (TYP)
3/4
1/2
1/4
1/4 R(2) EA. SIDE SEE NOTE 1
1/4 R EA. SIDE SEE NOTE 1
3/16 R(2) EA SIDE
.097-.102 (#40 DRILL) 4 HOLES (IN -15 & -17)
1/4 (TYP)
7/32
1/4
1 9/32
2
3 3/8
7/8
50°
1.847
1.722
11.5
10.785 (REF)
10.90 (REF)
10.52 (REF)
C.G. FRAME ONLY
-11 -12
-13 -14
DATUM
11.781 (REF)

NOTE :

1. ALL OUTSIDE CORNER RA

2. ALL INFORMATION NOT RE

MANUFACTURE OF PART IS FOR

3. NO TOOLING HOLEL PERMITTED

LAYOUT RELEASE

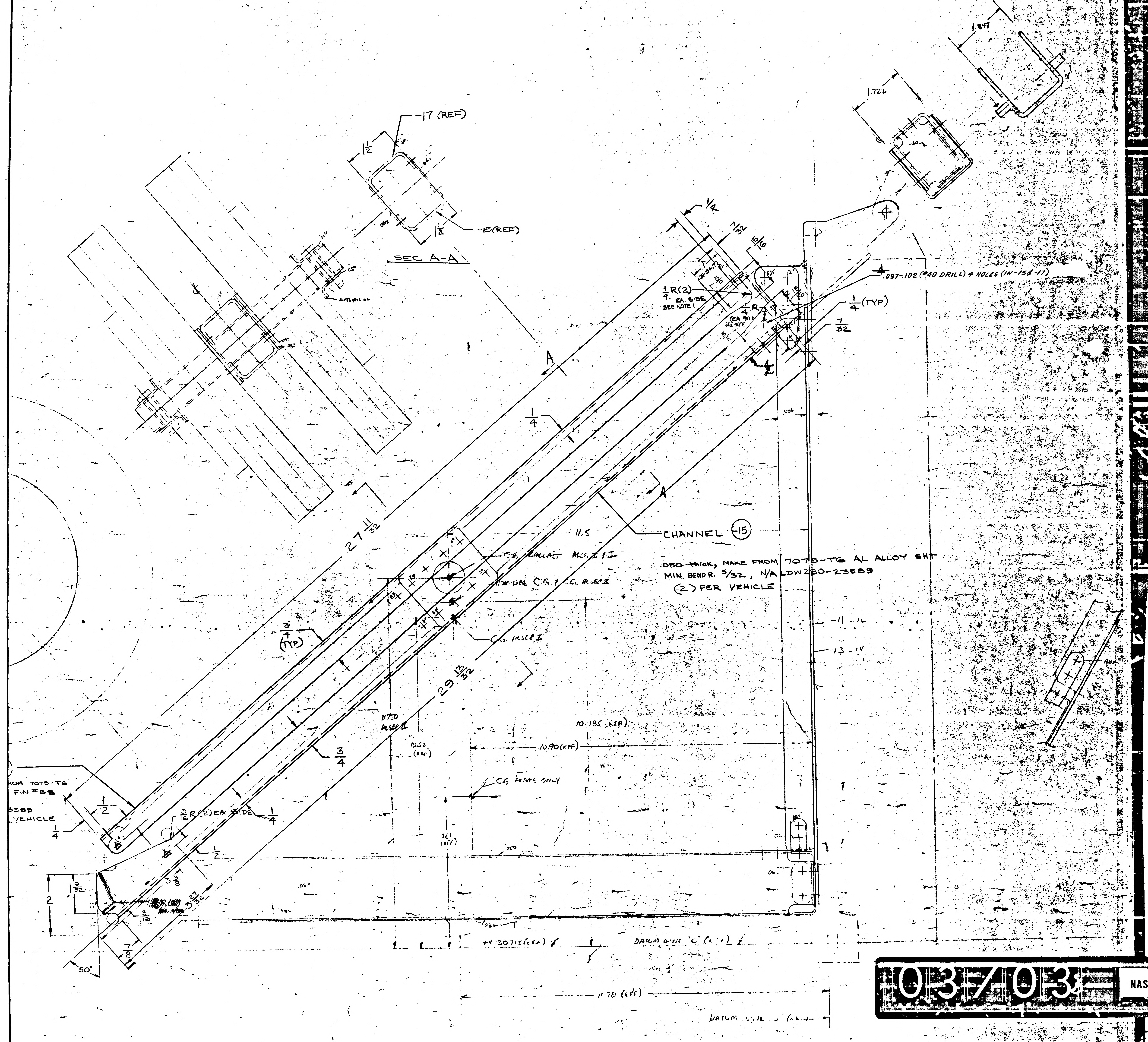
MAY ~~TO~~ BE REDRAWN ON

FORMAT

GRUMMAN AIRCRAFT EN

LM	SIZE	CODE IDENT NO. 26512
MODEL OR END ITEM	SCALE FULL	

02/03 NAS 9-1100


-17 (REF)
1/2
-15(REF)
1/8
SEC A-A
1/4
7/32
15/16
1/4 R(2) EA. SIDE SEE NOTE 1
1/4 R (EA SIDE SEE NOTE 1
5/8
.097-.102 (#40 DRILL) 4 HOLES (IN -15 & -17)
1/4 (TYP)
7/32
1.847
1.722
.050
A
A
1/4
27 11/32
CHANNEL -15
11.5
C.G. BALLAST ALSEP I & II
NOMINAL C.G. & C.G. ALSEP II
C.G. ALSEP I
3/4 (TYP)
29 13/32
3/4
-11 -12
-13 -14
10.795 (REF)
10.90 (REF)
10.53 (REF)
C.G. FRAME ONLY
ROM 7075-T6
FIN #88
3589
VEHICLE
1/2
1/4
3/16 R(2) EA SIDE
1/4
1/2
2
1 9/32
3 3/8
3 27/32
3/16
7/8
50°
.050
+Y 130.715 (REF)
DATUM LINE 'C' (REF)
11.781 (REF)
DATUM LINE 'J' (REF)

~~.080 thick~~, MAKE FROM 7075-T6 AL ALLOY SHT
MIN. BEND R. 5/32, N/A LDW280-23589
(2) PER VEHICLE

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP, ART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 98)= 28.6 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.2 SQ. FT.

PRINT TRIM LINE

LDW280-184

NOTE :
1. ALL OUTSIDE CORNER RADII OPTIONAL
2. ALL INFORMATION NOT REQ'D FOR MANUFACTURE OF PART IS FOR REF ONLY.
3. NO TOOLING HOLEL PERMITTED IN PARTS.

LAYOUT RELEASE
MAY BE REDRAWN ON PRODUCTION FORMAT

LDW280-18497

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE 4	CODE IDENT NO. 26512	LDW280-18497
MODEL OR END ITEM	SCALE FULL	-	SHEET 3

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1076
CONTROL INFO NO. LDW280B478/-

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

01
NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1433 CCA 586 PKG 22 (5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.

GAEC IC EO RELEASE: JK 8/7/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD.
APPROVED BY: VDI
DATE: 7/31/68
GROUP LEADER: 7/26/68
STRESS GROUP: NM 7/31/68
PROJ ENGRG: 7/31/68
GOVT: 8-7-68
PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1076

7-31-68
ISSUED BY J.TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18498
EO NO. A1
CONTROL INFO NO. LDW280B 0941

FOR LDW280-18498 -13

STEEL HEAT TREAT TO 150,000 PSI
ROCKWELL C 33 TO C 37
LSP 14-5100A
LDW280-18498-13 ONLY

(WAS STEEL HEAT TREAT TO 125,000 PSI)
ROCKWELL C27 TO C32
LSP 14-5100A
LDW280-18498-13 ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ CCA 586 LCD 1433 (5)

REASON FOR EO: ADDED STRENGTH REQ'D

DESCRIPTION OF EO: IN NOTE #1 STEEL HEAT TREAT TO 150,000 PSI ROCKWELL C33 TO C37 WAS TO 125,000 PSI ROCKWELL C27 TO C32

GAEC EO RELEASE: JK 1/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3	(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	12/27/67			12/27/67	12/29/67		12/27/67	1-2-68
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COMP~~

PRIORITY: C
DRAWING TITLE: BALLAST-DESCENT STAGE ALSEP SIMULATOR
DRAWING NO.: LDW280-18498
EO NO.: A1

1-2
ISSUED BY A.F. MARZELLA EXT 9505 SECTION VEH. DES. & INT. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

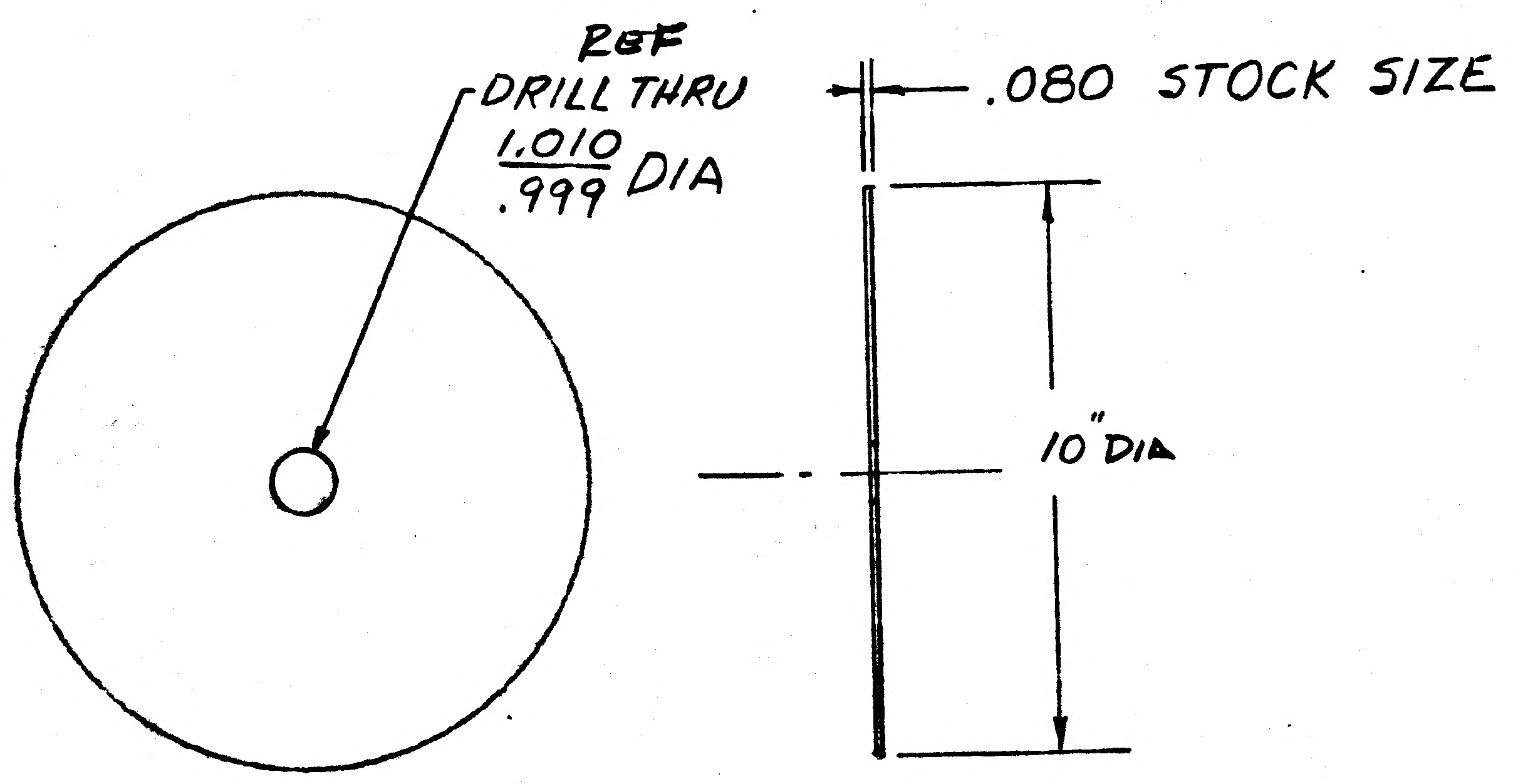
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18498
EO NO. A2
CONTROL INFO NO. LM-2-4574

IN FLD, B/M, & MOD/BLK

NEXT ASSEMBLY LDW280-23589

(ADD) -15 (2 REQD) SIMILAR TO -11 EXCEPT FOR OD. AND MATL. THICKNESS SHOWN



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ CCA 586 LCD 1433

REASON FOR EO: ADDITIONAL WEIGHT REQUIRED

DESCRIPTION OF EO: ADDED -15

(2) GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REWORK; REQD SCRAP

APPROVED BY / DATE: 3/20/68 VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
		—	3/13/68	3/13/68	3/20/68	3/14/68

PRIORITY: C

DRAWING TITLE: BALLAST — DESCENT STAGE ALSEP SIMULATOR

DRAWING NO. LDW280-18498

EO NO. A2

ISSUED BY LIAISON G.S. BRONSON 3604 SECTION VEH. DES & INT GROUP NO. 335 PL 25

01

NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1076
CONTROL INFO NO. LDW 280 B4781

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (✱)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (✱)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 1433 CCA 586 PKG 22		(5)
REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST		DESCRIPTION OF EO: ON (✱) ADDED DVT (70) REQMTS.			GAEC EO RELEASE IC JK 8/1/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD	REVISE DWG ✓	RECORD EO							
DISPOSITION OF PARTS	NOT REQD.	REWORK	SCRAP						
APPROVED BY									
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY C
DRAWING TITLE SEE DWG.
DRAWING NO. LEO 280
EO NO. 1076

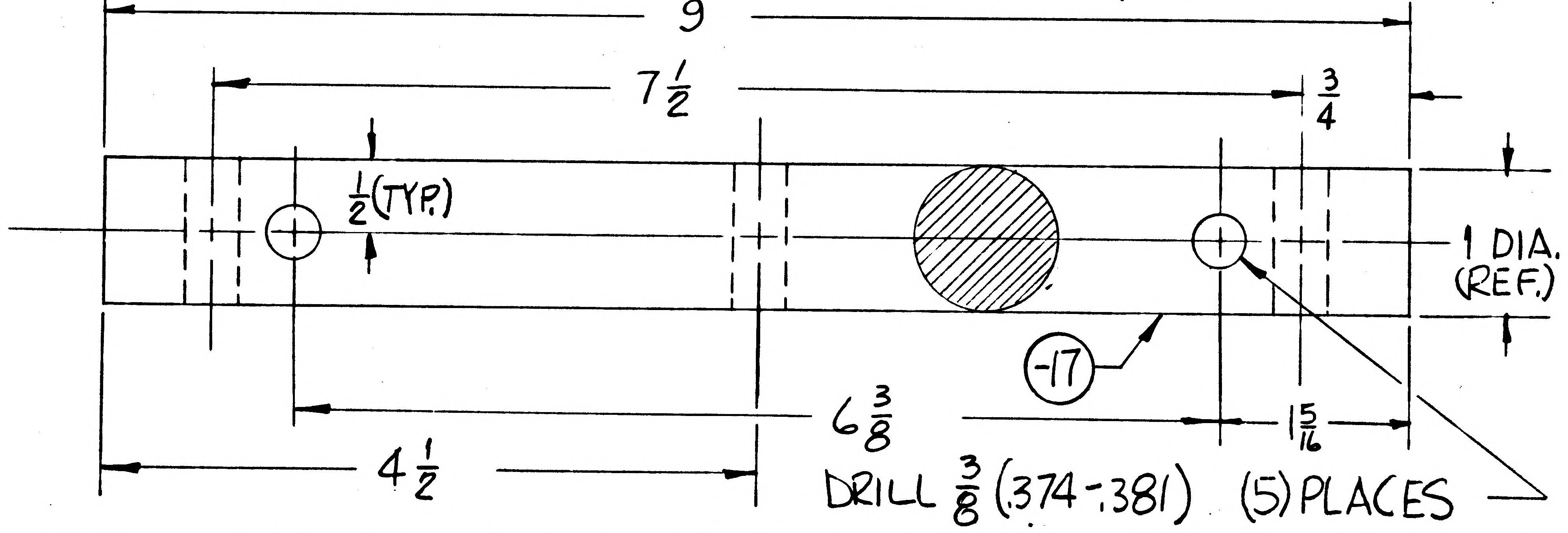
7-31-68
ISSUED BY J. TAVARES X1392 SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18498 | EO NO. A4
CONTROL INFO NO. LDW280B5269

ADD -17, N/A LDW280-23589, (2) REQD/MOD. EFF D.V.T (70)
RESTRICT -13 TO LTA-3(13) EFF., WAS DVT(70) & LTA-3(13).



MAKE -17 FROM: 1" DIA., ROD, ALLOY STEEL, MIL-S-5000A, 4340, H.T. 150,000 P.S.I., FINISH # 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22	(5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ADDED -17
RESTRICT -13 TO LTA-3(13) EFF., WAS DVT(70) & LTA-3(13)

GAEC EO RELEASE: 8/28/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-13 SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GCO
DATE	8/23/68			8-23-68	8/26/68		8/28/68	8-28-68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BALLAST ~ D/S ~ ALSEP SIMULATOR	LDW280-18498	A4

9-5-68
ISSUED BY J. TAVARES x87222 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18499

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2 EA.
PART NO. LDW280-18499-11 & -13		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION #111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -13

GRUMMAN REL & INFO

PRIM NO. 207 | X.F. 001 | M.P.-16 | 12/1/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 CCA 586
OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY E. RANSOM 11-30-67
LAYOUT BY F. MARZELLA
CHECKED BY A. J. Marzella 12-1-67
GRP. LEADER 12-1-67
VEH. DES. INT. 12/1/67
WEIGHTS
RELIABILITY
STRUCT.
STRUCT. for R.A. HILDERMAN
PROJ ENGR J. Pusateri 12/1
REL GROUP 12/6/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

RUNNER ~ DESCENT STAGE, APOLLO LUNAR SCIENTIFIC PACKAGE SIMULATOR

SIZE B
CODE IDENT NO. 26512
LDW280-18499
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-4-67

5

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18499-13	E		RUNNER	AL. ALLOY PLATE	QQ-A-250/12	7075-T6	.250 x 3/4 x 23 1/2	NONE	88	
	LDW280-18499-11	E		RUNNER	AL. ALLOY PLATE	QQ-A-250/12	7075-T6	.250 x 3/4 x 23 1/2	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

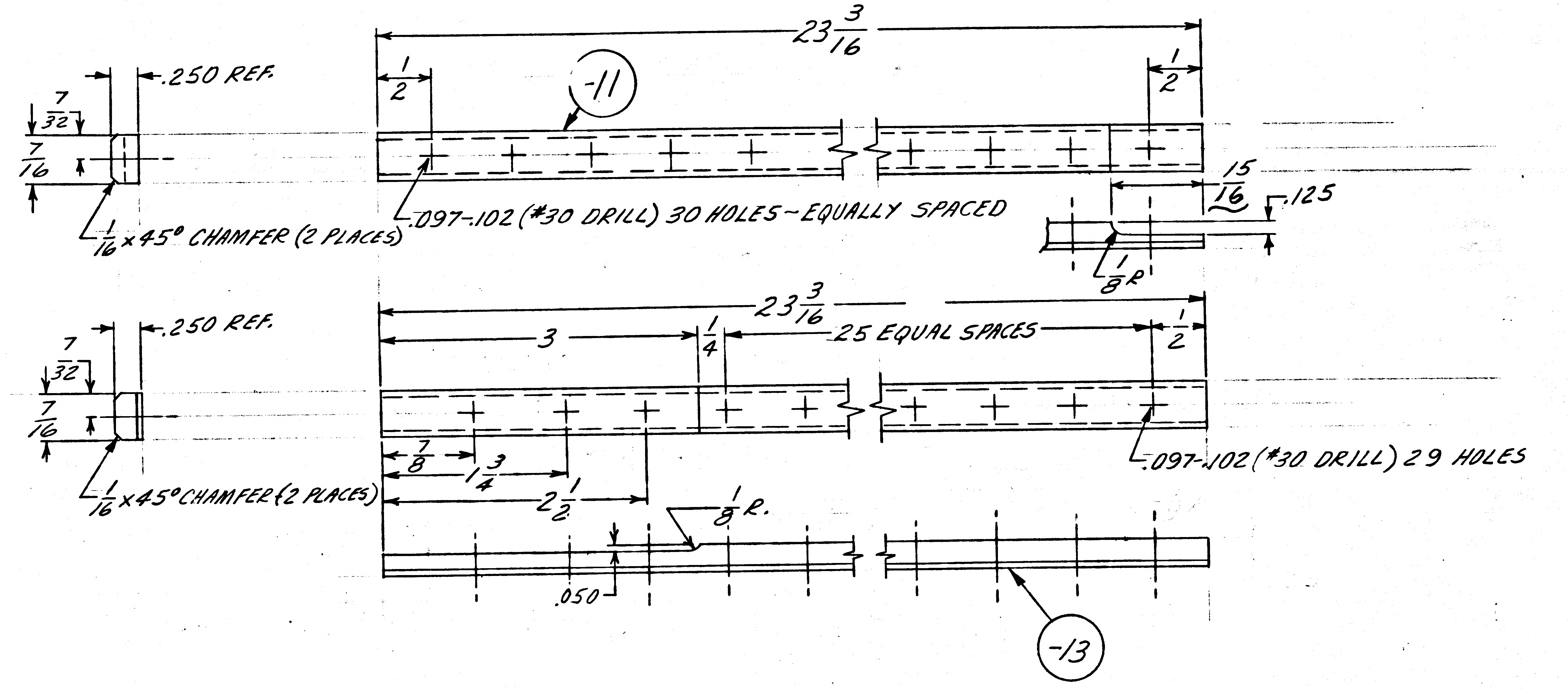
SIZE B
CODE IDENT NO. 26512
LDW280-18499
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED.



23 3/16
1/2
-11
1/2
.250 REF.
7/32
7/16
1/16 x 45° CHAMFER (2 PLACES)
.097-.102 (#30 DRILL) 30 HOLES ~ EQUALLY SPACED
15/16
.125
1/8 R
23 3/16
.250 REF.
3
1/4
25 EQUAL SPACES
1/2
7/32
7/16
1/16 x 45° CHAMFER (2 PLACES)
7/8
1 3/4
2 1/2
1/8 R.
.050
.097-.102 (#30 DRILL) 29 HOLES
-13

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18499

SCALE FULL SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO 280	EO NO.	1076
CONTROL INFO NO.	LDW280B4781 ✓		

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11	SEE DWG.	A1
-13		
-15		
-17		
-18491-19		
-18496-13		A2
-17		
-21		
-18496-22		
-18497-11		A1
-12		
-13		
-14		
-15		
-18497-17		
-18498-11		A3
-18498-13		
-18498-15		
-18499-11		A1
-18499-13		
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11	SEE DWG	A1
-13		
-15		
-17		
-19		
-20		
-18508-21		
-18509-11		A1
-12		
-13		
-18509-15		
-18510-11		A1
-12		
-13		
-15		
-17		
-18		
-18510-19		
-23605-3		A3
-23605-4		
-18504-11		A3
-13		
-15		
-17		
LDW280-18504-19	SEE DWG.	

01
NAS 9-1100

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 1433 CCA 586 PKG 22 (5)

REASON FOR EO	SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST	DESCRIPTION OF EO	ON (*) ADDED DVT (70) REQMTS.

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		NOT REQD.		7/27/68 VDI			7/26/68	NM 7/31/68		7/31/68	8-7-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1076

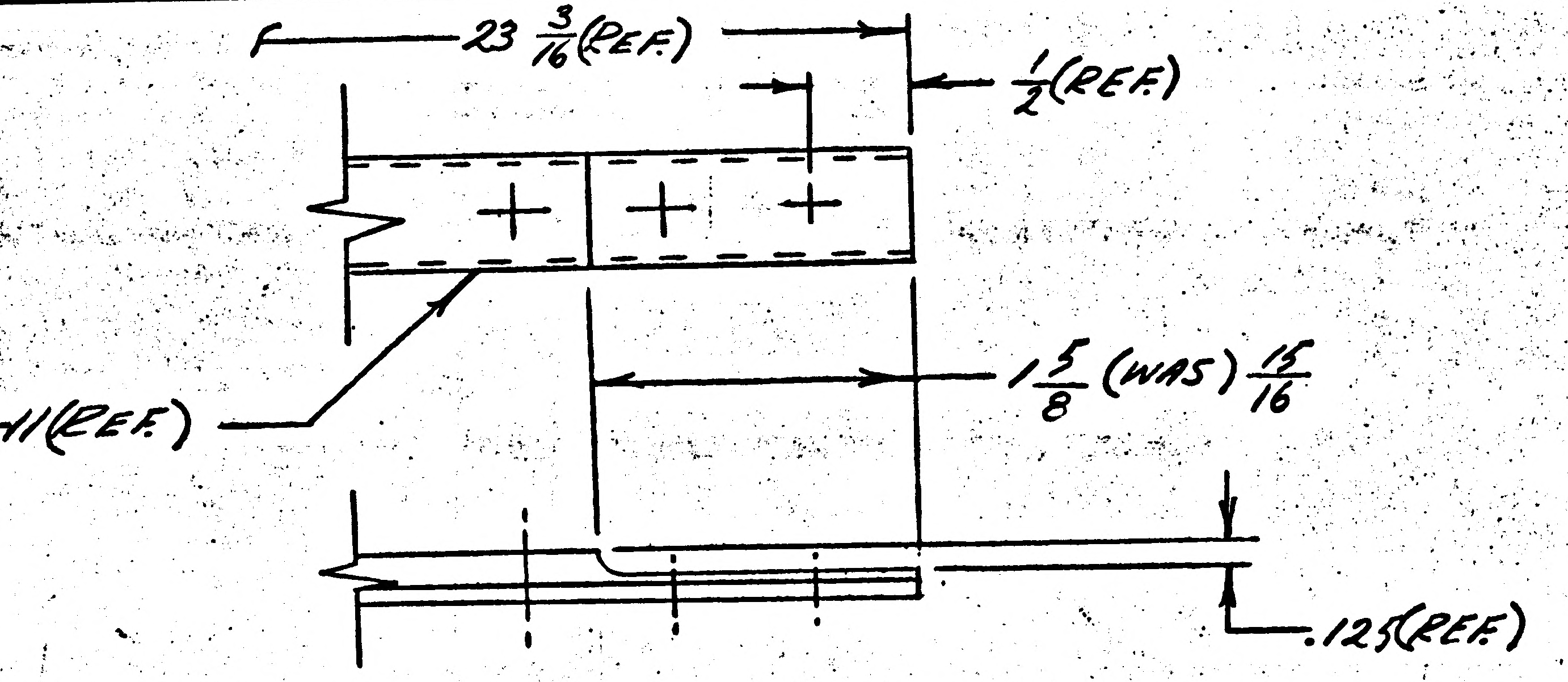
GAEC EO RELEASE IC JK 8/7/68

7-31-68
ISSUED BY J.TAVARES X1392 SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18499
EO NO. A2
CONTROL INFO NO. LM-2-5087



Fin #76
AFTER REWORK

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO CLEAR ADJACENT STRUCTURE

DESCRIPTION OF EO: ON-11 DIM. 1 5/8 (WAS) 15/16

GAEC EO RELEASE ②

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				RST	J.M.	Ctf	JAP	
DATE	12/6/68			12/5/68	11/19/68	11/19/68	12/6/68	11-19-68
	VDI							

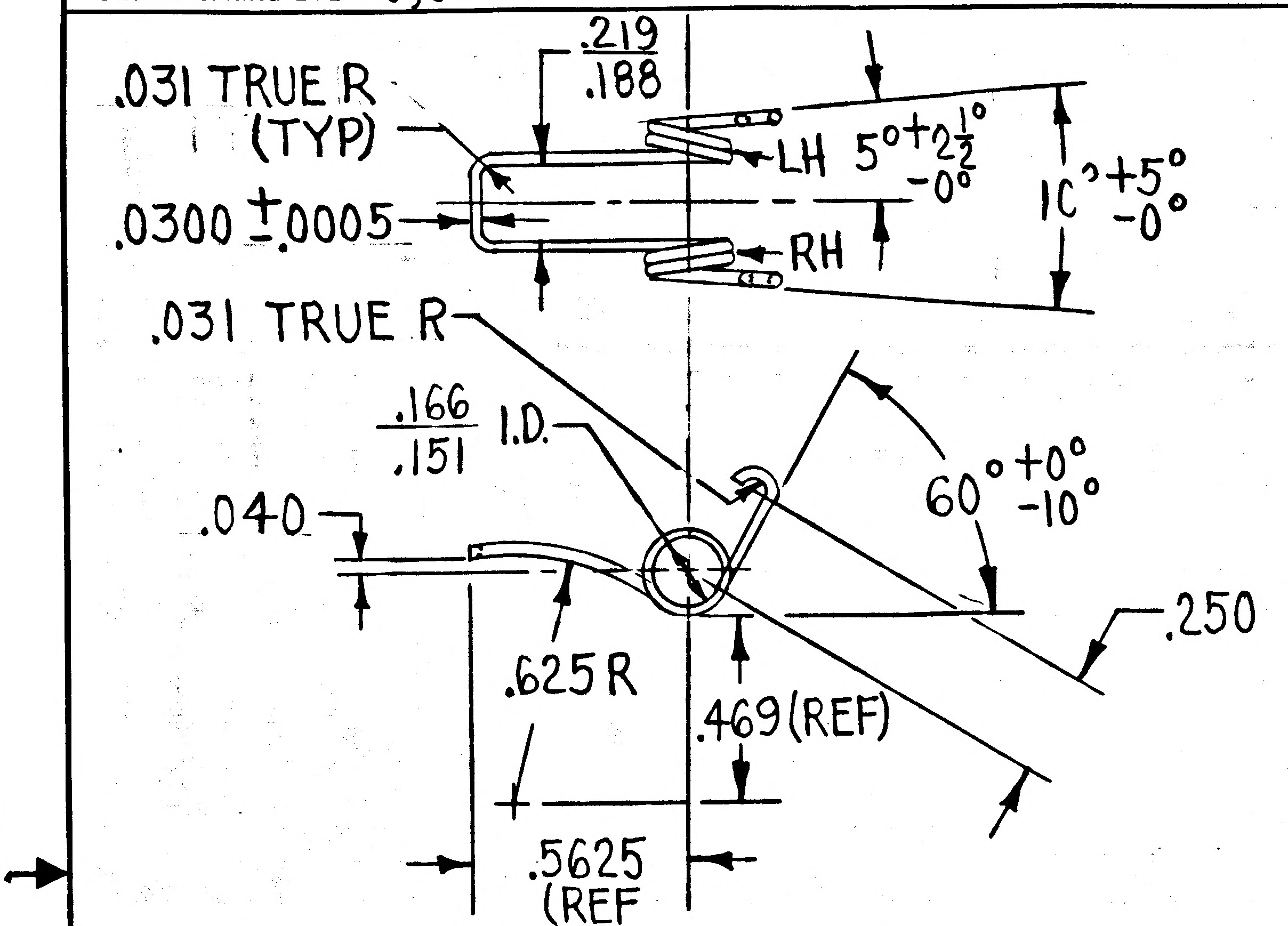
PRIORITY: C
DRAWING TITLE: RUNNER O/S APOLLO LUNAR SCIENTIFIC PACKAGE SIMULATOR
DRAWING NO.: LDW280-18499
EO NO.: A2

ISSUED BY LIAISON (X3604) SECTION VDI GROUP NO. 335 PL 25

ENGINEERING INFORMATION ONLY

DEFLECTION RATE: 8.0 INCH LBS/360°	MAX. LOAD IN RANGE:	
DESIGN SPRING LIFE 10,000	CYCLES AT STRESS RANGE	50 %

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	APPD ENGRG	GOVT



NOTES CHECKED ✓ APPLY TO THIS DRAWING

✓	NO. OF ACTIVE COILS: 2 PER SIDE		STRAIN RELIEVE AFTER FORMING.
	SPRING TO OPERATE INSIDE OF		MAGNAFLUX
	SPRING TO OPERATE OVER DIA PIN		END LOOP MEAN DIA TO BE SAME AS COIL MEAN DIA UNLESS OTHERWISE SPECIFIED
	TOLERANCE ON PROPORTIONATE LOAD ± 10%		GAP IN END LOOPS SHALL BE EQUAL TO ONE WIRE DIA UNLESS OTHERWISE SPECIFIED
	INITIAL TENSION:		FINISH:
✓	DIRECTION OF COILING: LH & RH		INSPECTION TEST LOAD 1.33 ±.5 INCH LBS AT 60° DEFLECTION

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54633	DSGN VERIFICATION TEST (70)	2
↕	↕	LM-15 (45)	2
		↕	2
			2
		LM-4 (15)	2
LM	LDW280-54633	LTA-3 (13)	2

PART NO. LDW280-18500-11 GAEC SCH NO. 50

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18500-11	E	MUSIC WIRE	QQ-W-470	HI CARBON

WORK PKG FUNCTION NO. 111 (5)

LINE ITEM DOCUMENTATION TYPE II

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH
NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS — DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

B	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD1433 CCA586	

GRUMMAN REL INFO	PRIM NO.		
	207	JK(001) mP-16	12/13/7

CONTRACT NO.	NAS9-1100		
DRAWN BY	G.ZARCADOOLAS 12-5-67		
LAYOUT BY	R.CLARK		
CHECKED BY	JAC 12-8-67		
GR LEADER	Thoyius 12-9-67		
VEH DSGN INT	J. Pusateri 12/9/67		
STRUCTURES	NJW 12/12/67		
STRUCTURES	FEB 12/12/67	PROJ ENGR	J. Pusateri 12/9/67
WEIGHTS		RELEASE	12/13/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DOUBLE TORSION-DESCENT STAGE-APOLLO
LUNAR SCIENTIFIC EQUIP. PKG-STRAP OPERATION

SIZE	CODE IDENT NO.	
B	26512	LDW280-18500
SCALE	NONE	SHEET 1.00 OF 1

ENG 77.11 9-64

CDR 12/18/67

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 961
CONTROL INFO NO. LDW2-DB 3377

FOR THE FOLLOWING PART NO'S ADD TM-5/R$^{(65)}$ REQMTS FOR THE N/A'S INDICATED FOR THE QUANTITIES NOTED:

PART NO. *	TITLE	N/A'S & QTY REQD/ASSY LDW280-54633	LDW280-54566	LDW280-54702	CHG. NO.
LDW280M17829-13	SEE DWG.	2			B1
M17865-13		1			A2
-18418-15		2			A4
-18492-11		1			A1
-18500-11		1			A1
M17837-11		2			A2
M17864-11		1			A3
M17866-11		1			A1
M17867-11		1			A2
-18362-17			1		A5
-18362-19			1		
-18362-21			1		
-18362-25			1		
M17780-11			1		A1
-17880-15			1		B2
-17880-19			1		
-17878-19			1		B3
-17623-21			2		C2
-18417-11			1		A1
-18363-11			1		A1
-18363-13			1		
-18363-15			1		
-18363-17			5		
-18363-19			1		
M17624-1			1		B3
M17779-11			1		A4
-17739-31				2	C7
-17739-33				3	
-18283-11				1	A7
M17544-9				1	B3
M17544-11				1	
M17670-5				1	D8
M17671-1				1	B8
M17730-11				1	A6
M17731-11				1	A6
M17732-11				1	A6
M17733-11				1	A7
LDW280M17872-11	SEE DWG.			1	B2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075	CCA 586	PKG 2L, 2M, 2N (5)	GAEC EO RELEASE C

REASON FOR EO: ADD TM-5/R$^{(65)}$ REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-21-68
✓		NOT REQD.			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	961

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO /350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505	A4	
-18506	A3	
-18507	B1	
-18512	B2	
-18513	A4	
-18514	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: K 4/10/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
APPROVED BY					W/H			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/10/69

PRIORITY C
DRAWING TITLE SEE DWG
DRAWING NO. LEO 280
EO NO. 1350

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

[redacted] LEO 280 | EO NO. 1554
CONTROL INFO NO. LDW 280B 8118

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18478	SEE DWG	A4
✓ 487		A5
✓ 489		A4
✓ 490		B2
✓ 492		A3
✓ 500		A3
505		A5
LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG 19 PG 36 & 37 5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8/13-69; JK 8/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	P&F					N			Bauman
DATE	7-29-69				7/29/69	8-2-69		8/2/69	8/15/69
	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18501

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23583	LTA-3(13)	2 EA.
PART NO. LDW280-18501-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	1 EA.
PART NO. LDW280-18501-11,-13,-15,-19 & 20		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL^C INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-20	207	MP-16 12/16/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
CCA-586 LCD 1433
OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	E. RANSOM 12/2/7		
CHECKED BY	12-5-67		
GR.LEADER	12-5-67		
VEHDES INT	12/5/67		
STRUCT.		PROJ ENGR	12/5/67
STRUCT.	12/13	REL GROUP	12/15/67
WEIGHTS			

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - SCIENTIFIC EQUIP.
MASS SIMULATOR - CORNER

SIZE B
CODE IDENT NO. 26512
LDW280-18501
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 12/4/67

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18501-20	E		ANGLE	AL ALLOY SH	QQ-A-250/4	2024	.032 x 4 x 19	T3/T42	88	
	LDW280-18501-19	E		ANGLE	↕	QQ-A-250/4	2024	.032 x 4 x 19	T3/T42	88	
	LDW280-18501-17	E		GUSSET	↕	QQ-A-250/12	7075-T6	.050 x 3 x 4	NONE	88	
					↕						
	LDW280-18501-13	E		WEB	↕	QQ-A-250/4	2024-T3	.032 x 17 x 21	NONE	88	
	LDW280-18501-11	E		WEB	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 14 x 22	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18501

SCALE NONE

SHEET 3.00

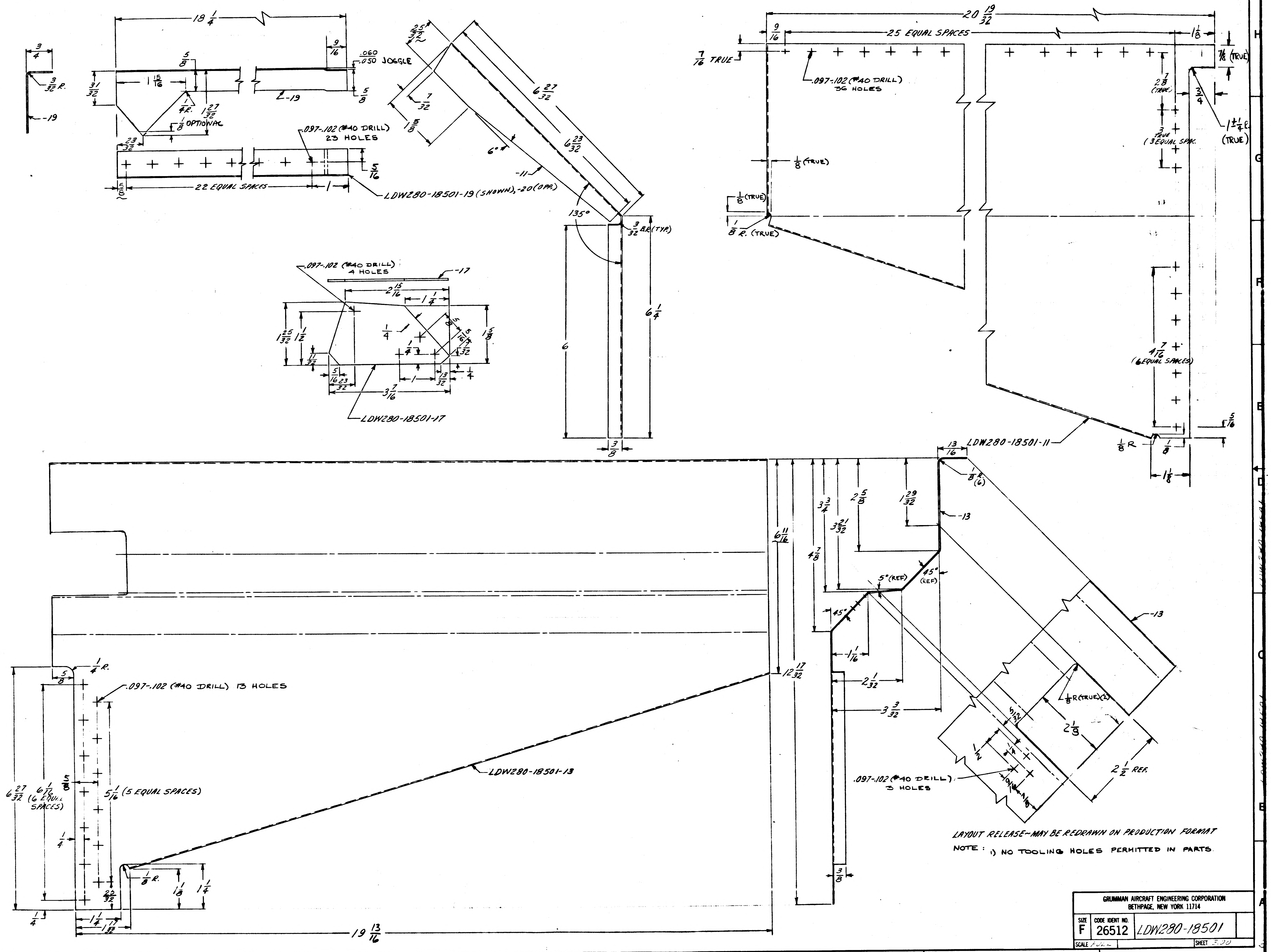
−

ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	✓
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



-19
.060 .050 JOGGLE
OPTIONAL
.097-.102 (#40 DRILL) 23 HOLES
22 EQUAL SPACES
LDW280-18501-19 (SHOWN), -20 (OPP.)
-11
135°
3/32 R (TYP)
.097-.102 (#40 DRILL) 4 HOLES
-17
LDW280-18501-17
25 EQUAL SPACES
7/16 TRUE
.097-.102 (#40 DRILL) 36 HOLES
1/8 (TRUE)
1/8 R. (TRUE)
7/16 (TRUE)
1 1/4 R. (TRUE)
(3 EQUAL SPA.)
(6 EQUAL SPACES)
LDW280-18501-11
-13
5° (REF)
45° (REF)
45°
.097-.102 (#40 DRILL) 13 HOLES
(5 EQUAL SPACES)
(6 EQUAL SPACES)
LDW280-18501-13
.097-.102 (#40 DRILL) 3 HOLES
2 1/2 REF.
1/8 R (TRUE)

LAYOUT RELEASE—MAY BE REDRAWN ON PRODUCTION FORMAT

NOTE : 1) NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

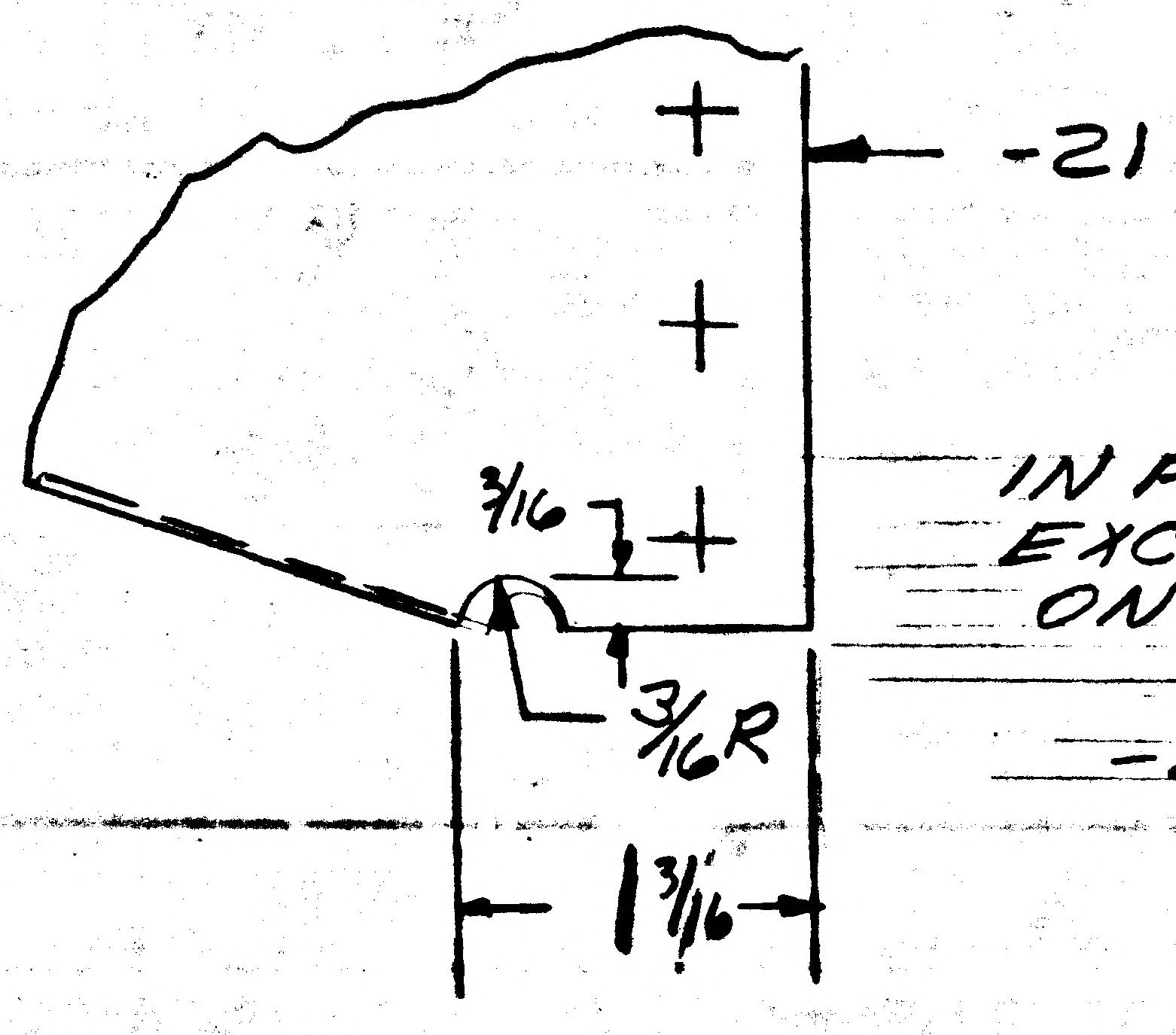
SIZE	CODE IDENT NO.	
F	26512	LDW280-18501
SCALE FULL		SHEET 3 20

ENG 73.5 REV 5-67

ENG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18501
EO NO. A1
CONTROL INFO NO. LM-2-4478



IN FLD & BM CREATE -21 SAME AS -11
EXCEPT AS SHOWN & NOTED
ON-21 6 27/32 5/8 7 7/32
6 23/32 5/8 7 7/32

-21 REPLACES -11

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO
TO PROVIDE PROPER E.D. ON NEXT ASSY	ADDED -21 REMOVED -11

(2)
GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -11

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					—				
DATE	2/9/68	VDI			—	2/7/68	2/7/68	2/9/68	2-8-68

PRIORITY: C
DRAWING TITLE: WEB DES. STAGE - SCIENTIFIC EQUIP.
DRAWING NO. LDW280-18501
EO NO. A1

ISSUED BY LIAISON J. KOSLOSKI x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1100
CONTROL INFO NO. LDW280B4777

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART NO.(*)	TITLE	CHG NO.
LDW280-18414-11	SEE DWG.	A1
-13		
-15		
-18414-17		
-18455-11		A1
-18479-13		A4
-17		
-19		
-18479-21		
-18480-11		A1
-13		
-15		
-18480-17		
-18481-11		A1
-12		
-13		
-14		
-15		
-16		
-17		
-19		
LDW280-18481 -20	SEE DWG.	

PART NO.(*)	TITLE	CHG NO.
LDW280-18482-11	SEE DWG	A1
-12		
-13		
-14		
-15		
-16		
-17		
-18		
-19		
-18482-20		
-18483-11		A2
-13		
-14		
-15		
-17		
-18		
-18483-19		
-18484-11		A1
-12		
-13		
-18484-15		
-18501-17		A2
-19		
-20		
-13		
LDW280-18501-21	SEE DWG	

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22	(5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIM. REQD. FOR VIB QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.

GAEC EO RELEASE 16 ② SK 8/1/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK | SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JKS			G.H. Pist	JNM		J.P.	
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-1-68

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO280

EO NO.: 1100

7-31-68
ISSUED BY J. TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53715	LM-3(33)	2
PART NO.		GAEC SCH NO.	
LDW280-18502-11		50	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH	
SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 JC(00) MP-16- 1/4/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2446 CCA 788

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY J. BIANCHINO 12/19/67

LAYOUT BY D. BEITLER

CHECKED BY JC 12-28-67

GP LEADER 1-2-68

VEH DES INT 1/3/68

STRUCTURE 1/3/68

STRUCTURE 1/3/68

WEIGHTS

RELIABILITY

PROJ ENGR 1/3/68

REL GROUP 1-4-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE-
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY-
MASS REPRESENTATION

SIZE B

CODE IDENT NO. 26512

LDW280-18502

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 9-64

CDR 1-5-68

01

NAS 9-1100

	LDW280-18502-11	E		PLATE	AL ALY PLATE	QQ-A-250/4	2024-T351	.750 x 25 x 27	NONE	88	
QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

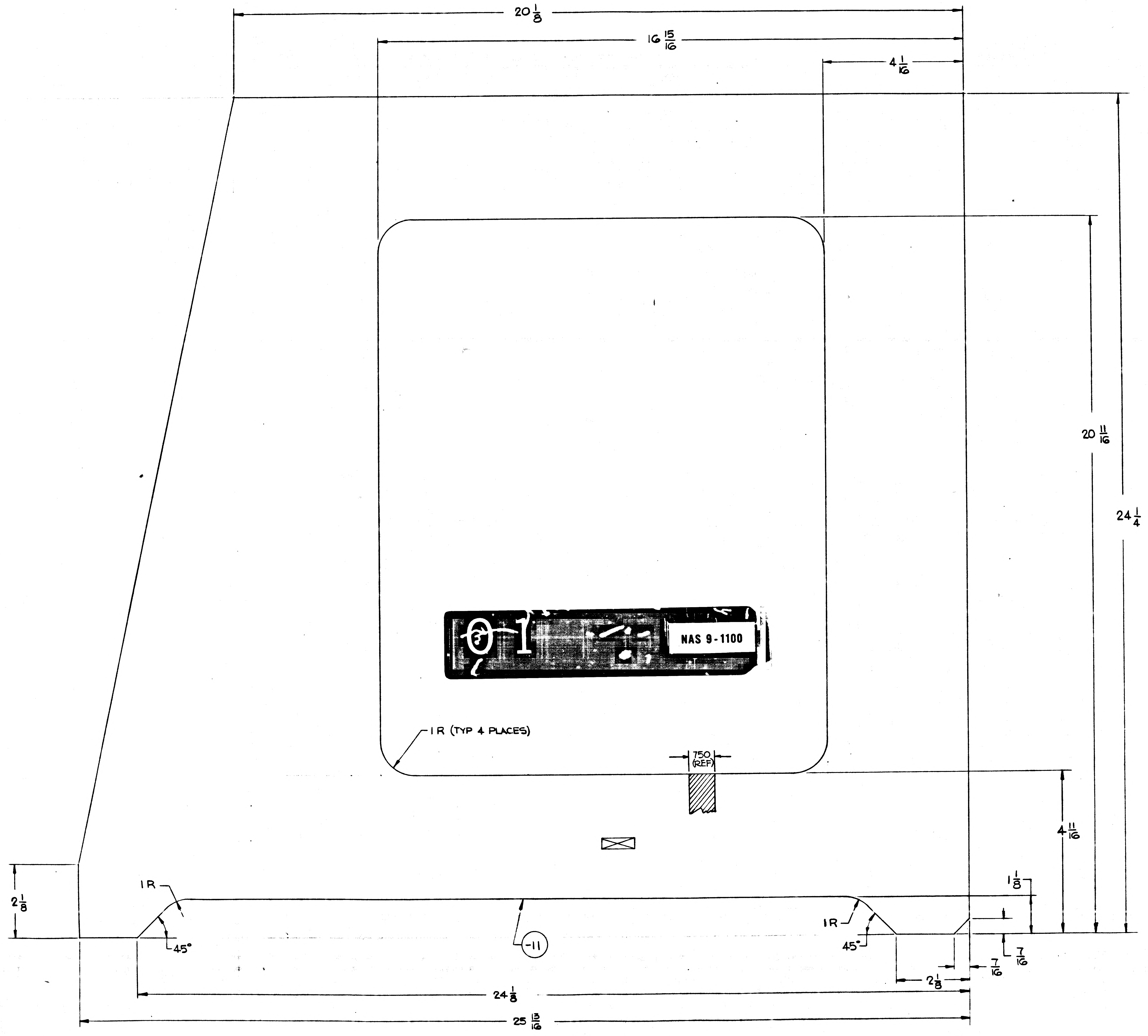
SIZE	CODE IDENT NO.	
B	26512	LDW280-18502

SCALE NONE SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



01

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

NOTE
1. NO TOOLING HOLES PERMITTED IN PART.

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I. NEW YORK
SIZE E
CODE IDENT NO. 26512
LDW280-18502
LM
MODEL OR END ITEM
SCALE FULL
SHEET 3

LDW280-18502

LDW280-18503

								LM	LDW280-53715	LM-3(33)	8
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-18503-11		GAEC SCH NO. 50	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00							
REV								
SHEET	2.00							
REV								
SHEET	3.00							
REV								

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. JK(001)
207 117P-16-1/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2446 CCA 788

CONTRACT NO. NAS9-1100
DRAWN BY J. BIANCHINO 12/13/67
LAYOUT BY D. BEITLER 6/4/4 12/16/67
CHECKED BY 1-2-67
GP LEADER Thorjusdi 1-3-68
VEH DES INT J. Steelman 1/3/68
STRUCTURE NM WJH 1/4/68
STRUCTURE EP 1/5/68
WEIGHTS
RELIABILITY
PROJ ENGR J. Passafiri 1/3/68
REL GROUP J. Tagliano 1-5-68

LINE ITEM

DOCUMENTATION TYPE II

Ⓔ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE-SCEINTIFIC EQUIPMENT BAY
CONTAINER MASS REPRESENTATION-TRACK

SIZE B
CODE IDENT NO. 26512
LDW280-18503
SCALE NONE
SHEET 1.00 OF 3 (-)

ENG 77.1 12-65

CDR 1-5-68

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18503-11	E		TEE	AL AL EXTR	QQ-A-200/3	2024-T3511	DIE # 46093 X 4	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

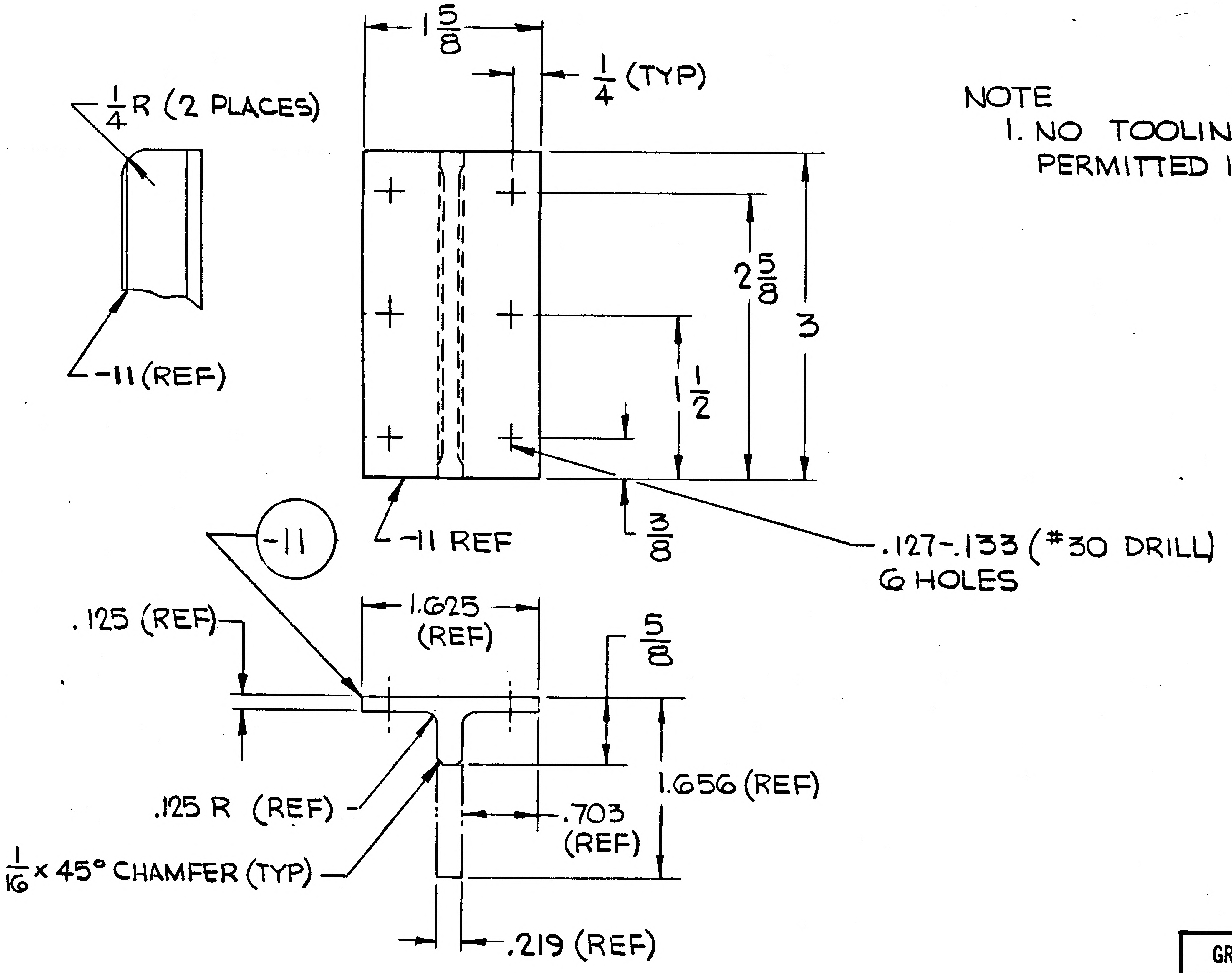
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18503

SCALE NONE SHEET 2.00

01 NAS 9-1100

ENG 771.2 4-67



1 5/8
1/4 (TYP)
1/4 R (2 PLACES)
-11 (REF)
2 5/8
3
1 1/2
3/8
-11 REF
.127-.133 (#30 DRILL)
6 HOLES
-11
1.625
(REF)
.125 (REF)
5/8
.125 R (REF)
1/16 x 45° CHAMFER (TYP)
.703
(REF)
1.656 (REF)
.219 (REF)

NOTE
1. NO TOOLING HOLES PERMITTED IN PART.

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18503

SCALE FULL
SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

LDW280-18504

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	1 EA
PART NO. LDW280-18504-11, -13, -15, -17 & -19		GAEC SCH NO. 50	

WORK PKG FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 | JK(00) MP-16 | 12/15/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 CCA 5810

OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY G. BELEV

LAYOUT BY

CHECKED BY Gt. Marcella 12-4-67

GR. LEADER 12-5-67

VEH DES INT 12/5/67

STRUCTURE 12/14/67

STRUCTURE 12/15

WEIGHTS

PROJ ENGR 12/5/67

REL GROUP 12/15/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP~
DESCENT STAGE-SCIENTIFIC
EQUIPMENT SIMULATOR

SIZE B | CODE IDENT NO. 26512 | LDW280-18504

SCALE NONE | SHEET 1.00 OF 3

CDR 12-4-67

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18504-19	E		SPACER	AL ALLOY SH	QQ-A-250/4	2024-T3	.094X 2X2	NONE	88	
	-17			CLIP				.050X 2X3			
	-15			CLIP				.050X 2X2			
	-13			ANGLE				.050X 4X 9			
	LDW280-18504-11	E		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.050X 2X4	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18504

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

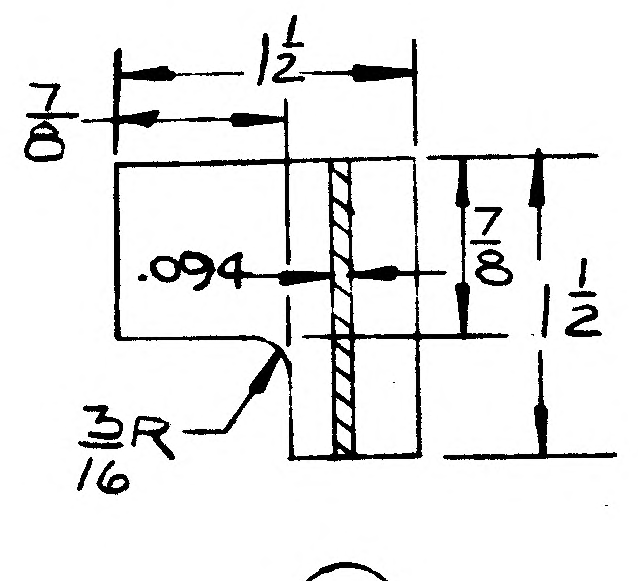
NAS 9-1100

LDW280-18504

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

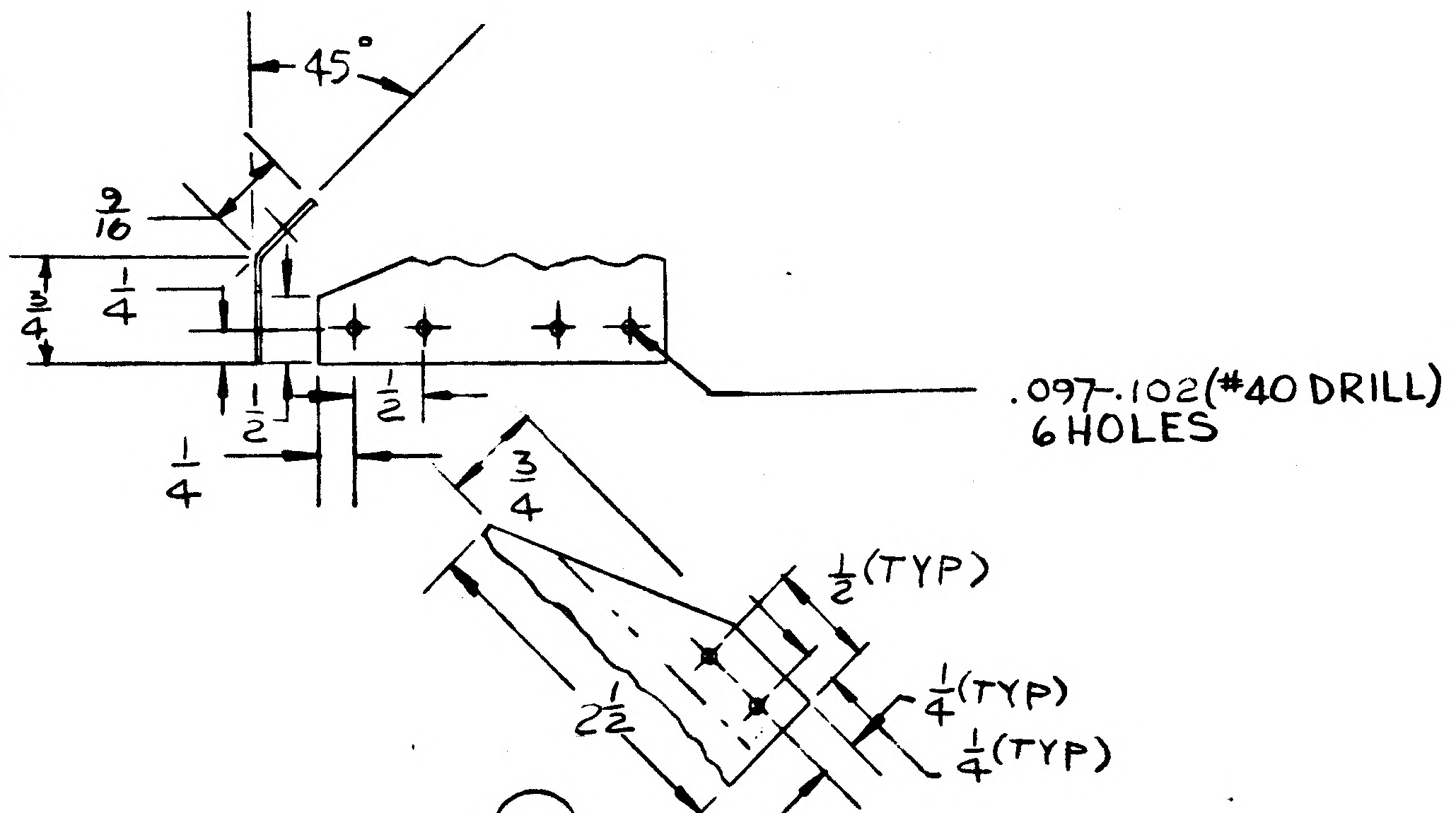
NOTES

1. 1/4" OUTSIDE RADII OPTIONAL
2. . ALL BR $\frac{5}{32}$
3. NO TOOLING HOLES PERMITTED IN PARTS



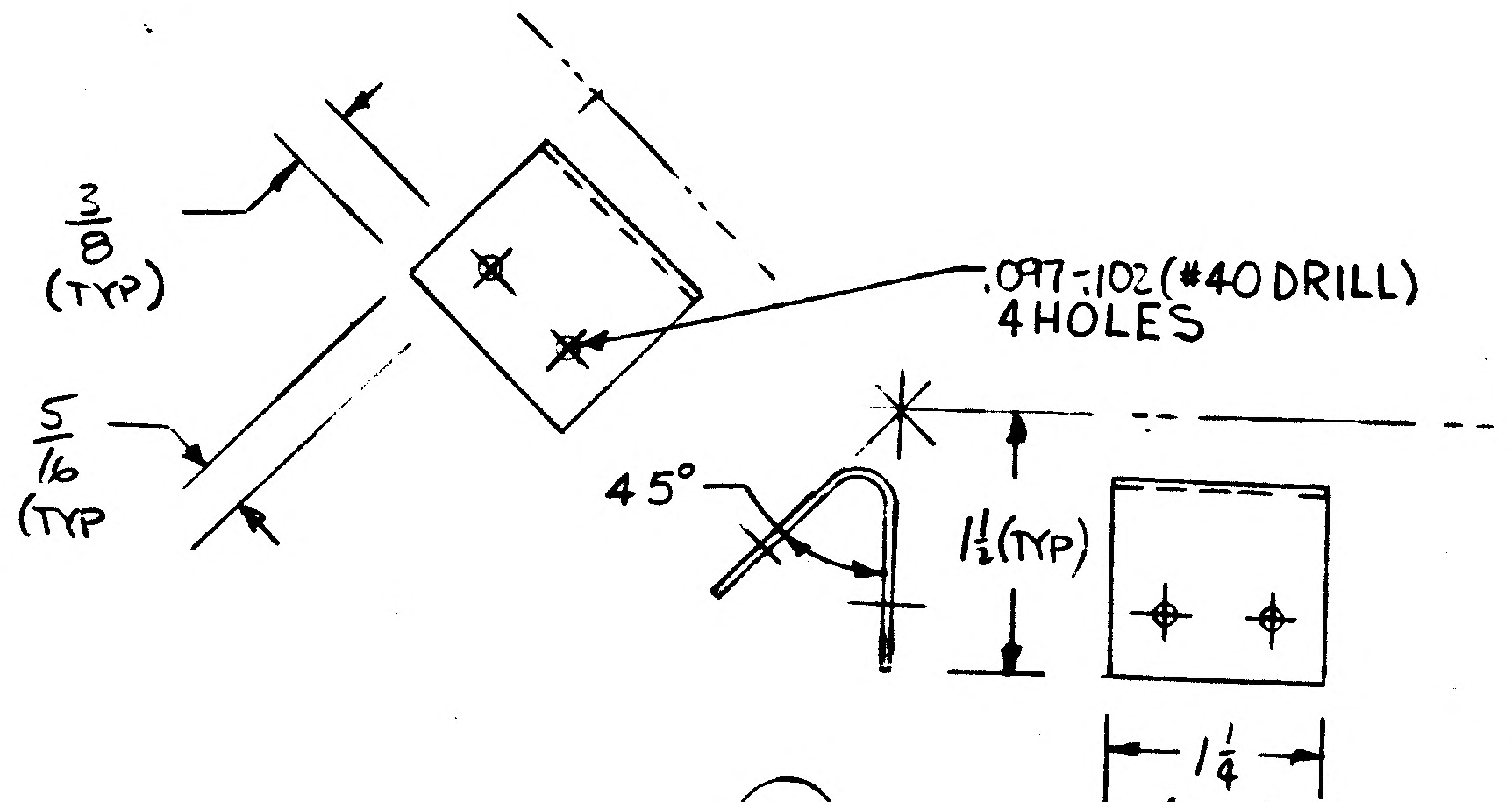
1/2
7/8
.094
7/8
1 1/2
3/16 R

⑲



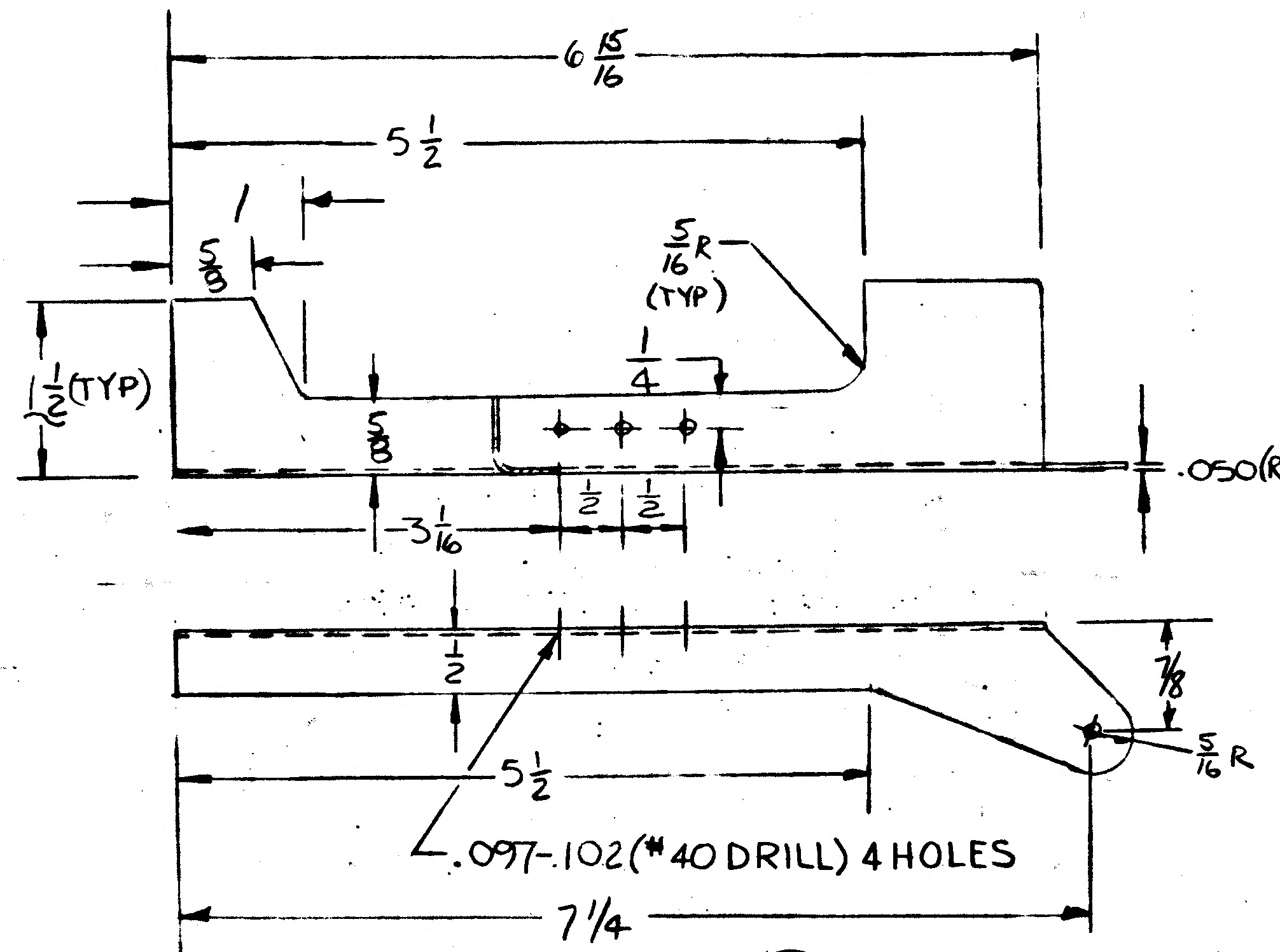
45°
9/16
1/4
1/4
1/2
1/2
1/4
.097-.102(#40 DRILL) 6 HOLES
3/4
1/2 (TYP)
2 1/2
1/4 (TYP)
1/4 (TYP)

-17



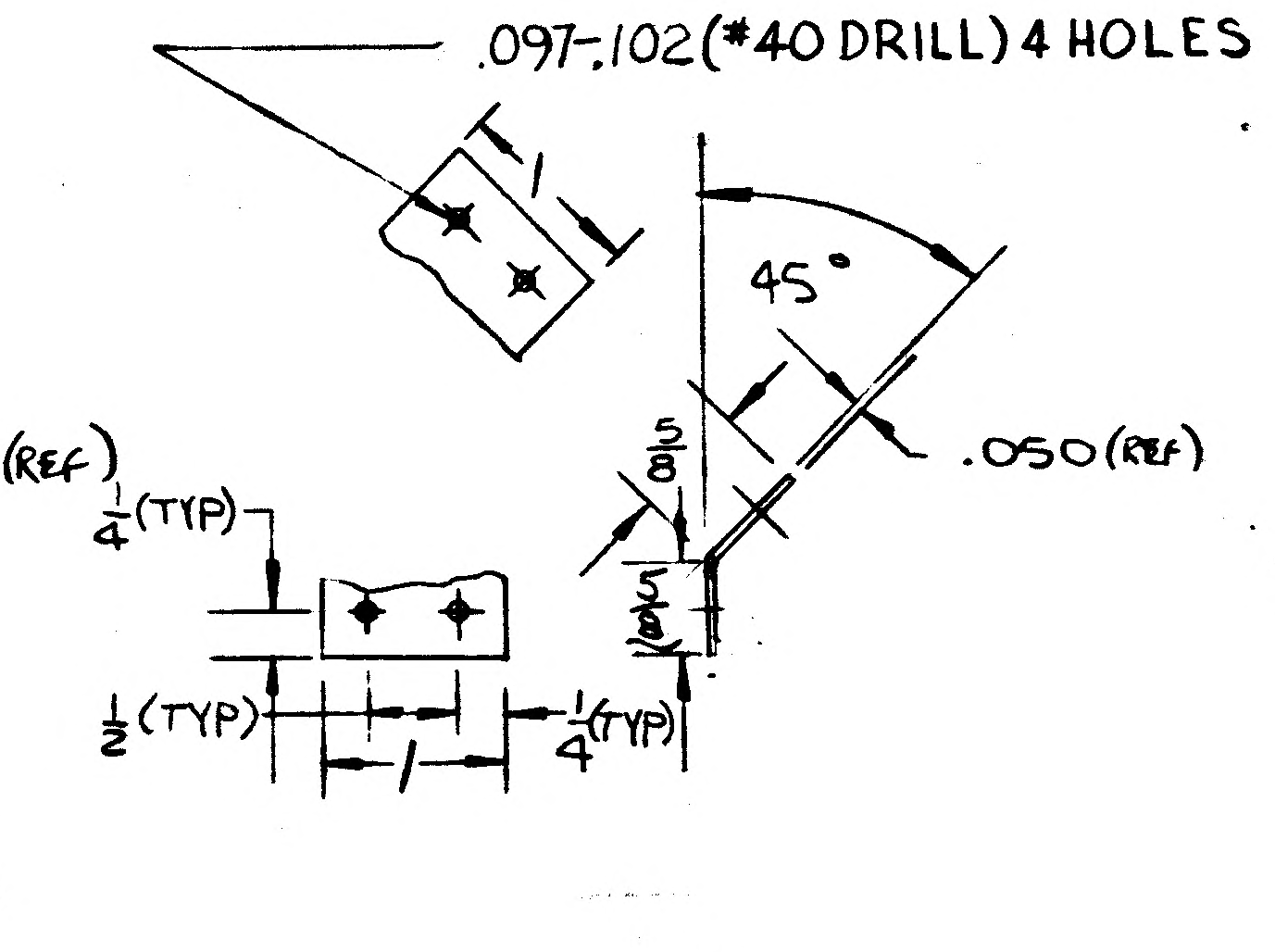
3/8 (TYP)
5/16 (TYP
.097-.102(#40 DRILL) 4 HOLES
45°
1 1/2 (TYP)
1 1/4 (TYP)

-11



6 15/16
5 1/2
1
5/8
5/16 R (TYP)
1/4
1 1/2 (TYP)
5/8
.050(REF)
3 1/16
1/2
1/2
1/2
7/8
5 1/2
5/16 R
.097-.102(#40 DRILL) 4 HOLES
7 1/4

-13



.097-.102(#40 DRILL) 4 HOLES
1
45°
.050(REF)
5/8
1/4 (TYP)
5/8
1/2 (TYP)
1
1/4 (TYP)

-15

LAYOUT RELEASE
MAY BE REDRAWN ON PRODUCTION FORMAT

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18504
SCALE FULL		SHEET 3.0

ENG 73.3 REV. 5-67

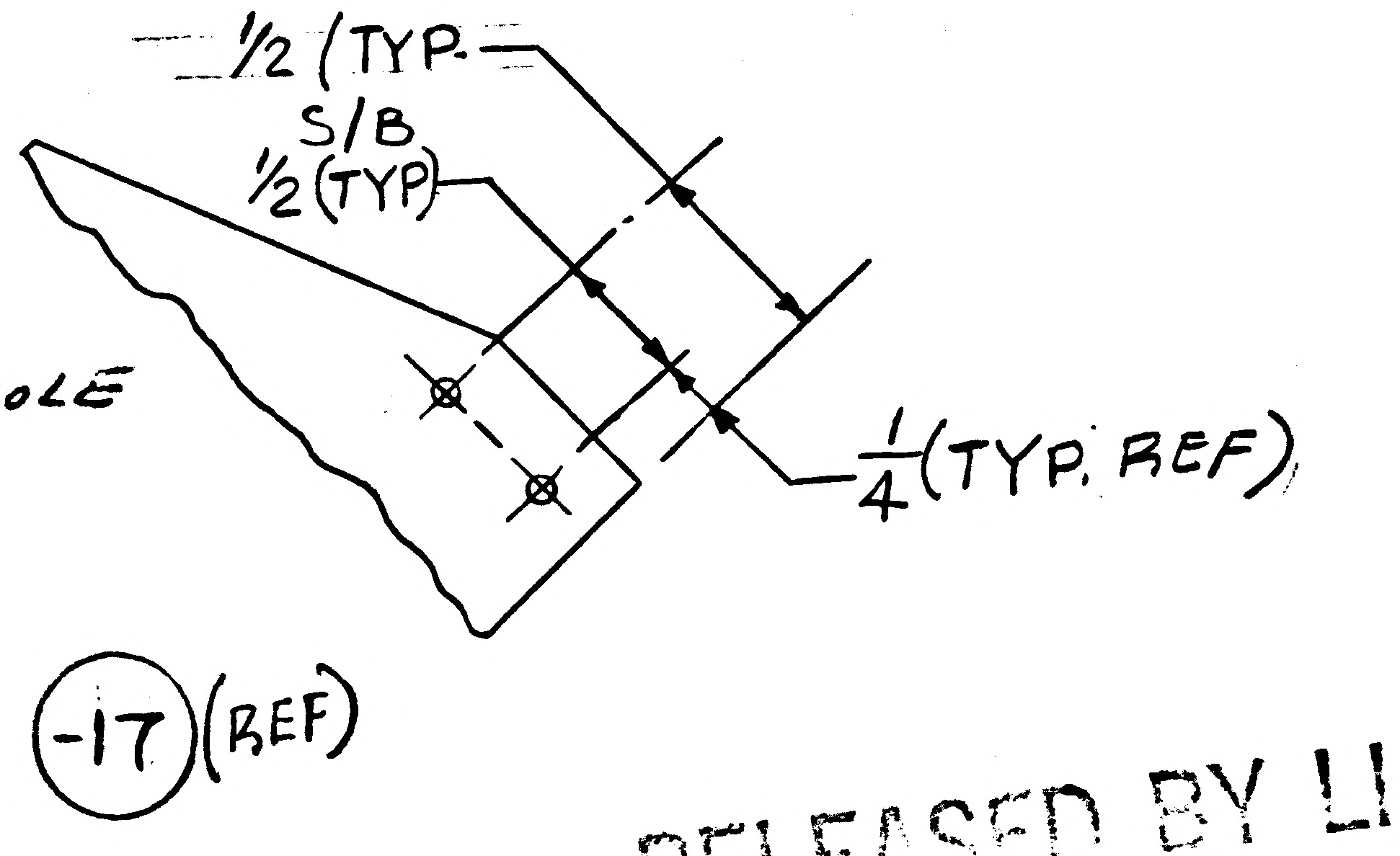
01 NAS 9-1100

NG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-18504
EO NO. A1
CONTROL INFO NO. LM-5-17687



FLUSH PLUG EXTRANEOUS HOLE BOTH SIDES WITH AD RIVET MATERIAL.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: CORRECTION OF DIMENSION LINE

DESCRIPTION OF EO: DIMENSION 1/2 (TYP) SHOULD BE CORRECTED AS SHOWN

GAEC EO RELEASE (5) ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	1/4/68			—	12-26-67	12-26-67	1/5/68	12-27-67
	VD1							

PRIORITY: C

DRAWING TITLE: CLIP DESCENT STAGE-SCIENTIFIC EQUIPMENT SIMULATOR

DRAWING NO. LDW 280-18504

EO NO. A1

ISSUED BY * LIAISON J. JARVIS/F.P. x86755 SECTION V.D.1 GROUP NO. 335 PL 25

01

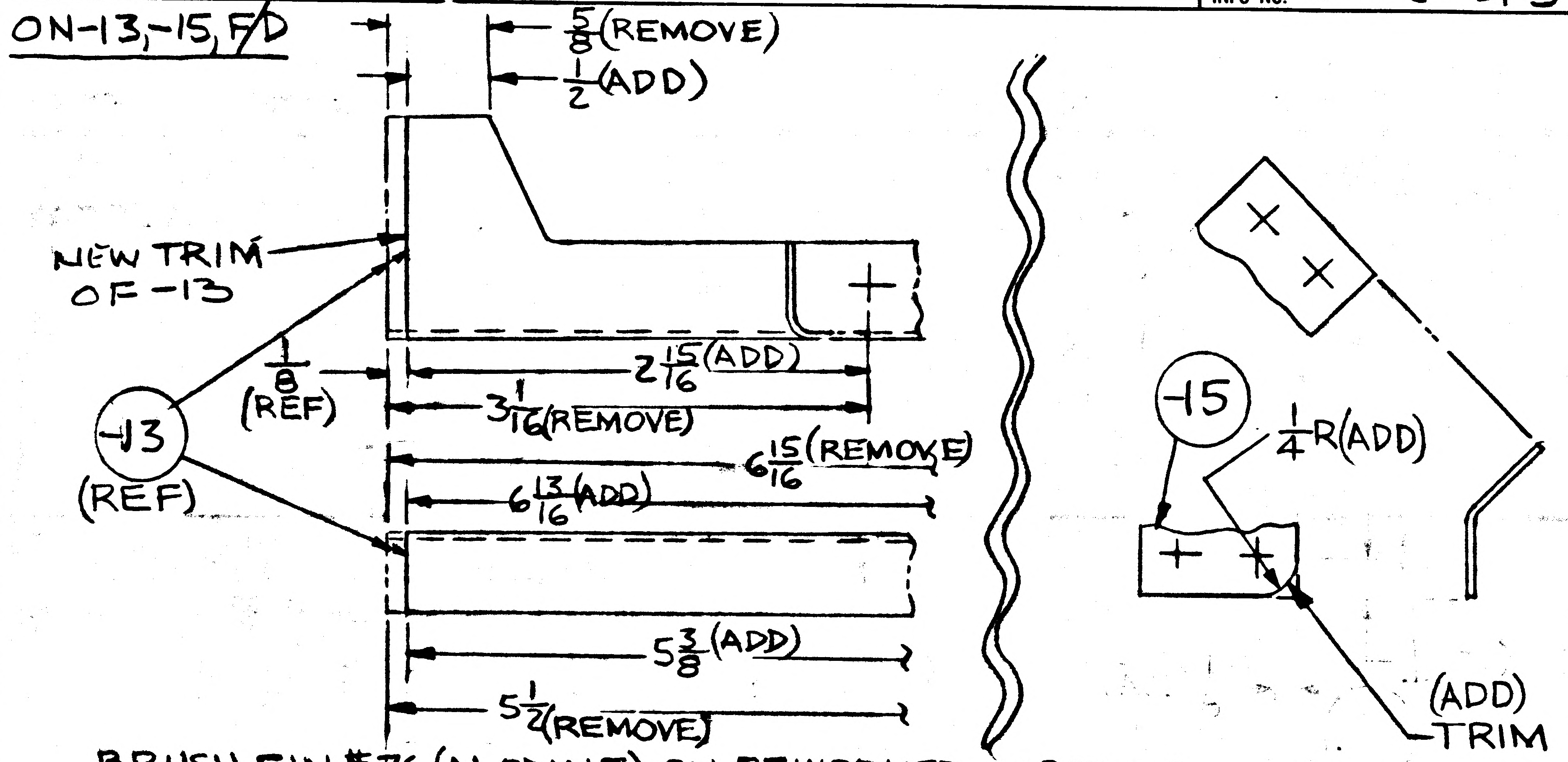
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 18504
EO NO. A2
CONTROL INFO NO. LM-2-4519

ON-13,-15, F/D


5/8 (REMOVE)
1/2 (ADD)
NEW TRIM OF -13
1/8 (REF)
-13 (REF)
2 15/16 (ADD)
3 1/16 (REMOVE)
6 15/16 (REMOVE)
6 13/16 (ADD)
5 3/8 (ADD)
5 1/2 (REMOVE)
-15
1/4 R (ADD)
(ADD) TRIM

BRUSH FIN #76 (ALODINE) ON REWORKED SURFACE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA 586

REASON FOR EO: INTERFERENCE AT INSTL WITH MATING PART

DESCRIPTION OF EO: ON-13,-15, F/D
ON-13 TRIM 1/8 OFF END; DIM'S 1/2 WAS 5/8, 2-15/16 WAS 3-1/16, 6 13/16 WAS 6 15/16, 5 3/8 WAS 5 1/2, ADDED TRIM;
ON-15 ADDED: 1/4 R, TRIM

(2) GAEC EO RELEASE: C VK 02 925

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(13)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
2/20/68 VDI

APPROVED BY	Jaf			—			Jaf	
DATE	2/28/68			—	2/21/68	2/26/68	2/28/68	2/21/68
	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CLIP D/S SCIENTIFIC EQUIP. SIMULATOR
DRAWING NO. LDW280-18504
EO NO. A2

ISSUED BY LIAISON T. WALSH X3604 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1076
CONTROL INFO NO. LDW2 0B4781

FOR THE FOLLOWING PART NUMBERS ADD DVT (70) EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.	PART No. (*)	TITLE	CHG No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1	LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18496-13 -17 -21 -18496-22		A2	-18509-11 -12 -13 -18509-15		A1
-18497-11 -12 -13 -14 -15 -18497-17		A1	-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-18498-11 -18498-13 -18498-15		A3	-23605-3 -23605-4		A3
-18499-11 -18499-13		A1	-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3
LDW280-23584-1	SEE DWG.	A1			

01
NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC IC EO RELEASE
SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST	ON (*) ADDED DVT (70) REQMTS.	JK 8/1/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD.	

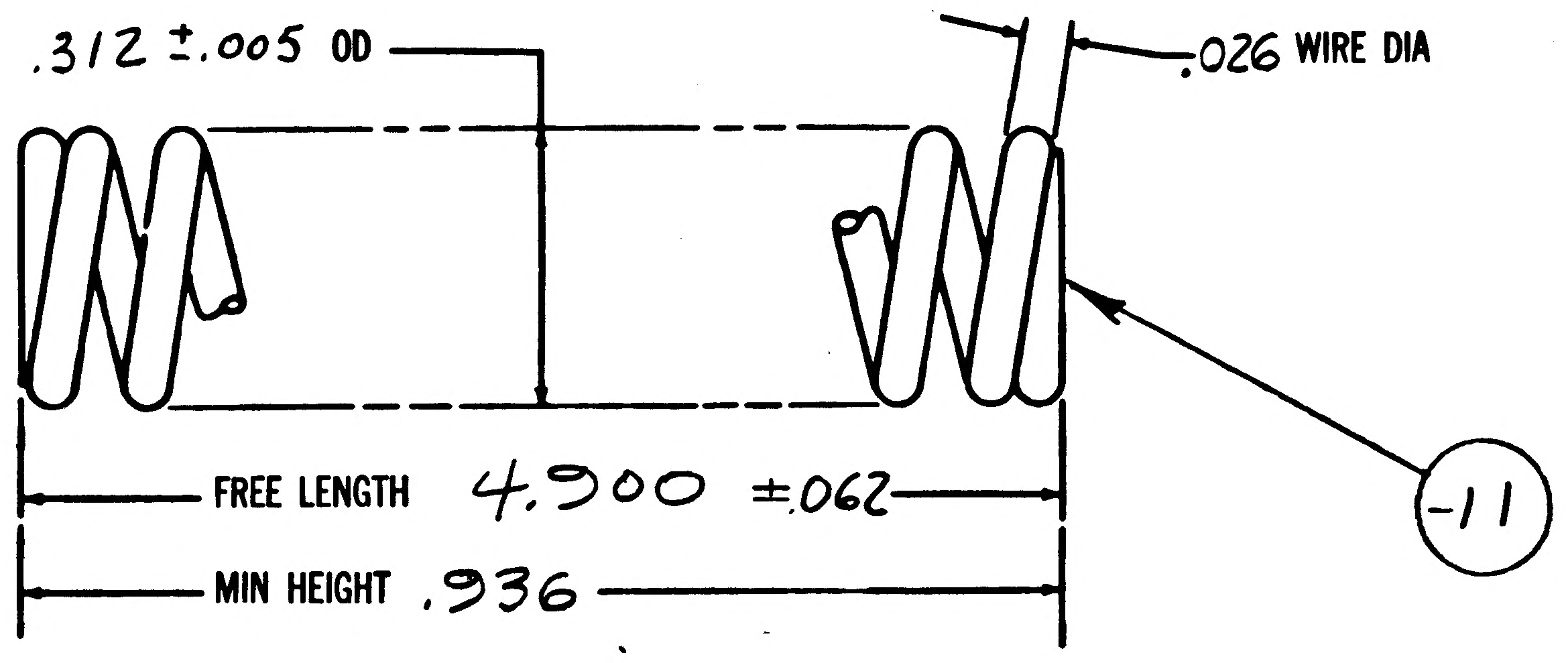
	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68
	VDI				NM			

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1076

7-31-68
ISSUED BY J.TAVARES X1392 SECTION VDI GROUP NO. 280 PL 25

ENGINEERING INFORMATION ONLY			
DEFLECTION RATE: .943 LBS/INCH		MAX. LOAD IN RANGE: 3.50 LBS	
DESIGN SPRING LIFE 50,000	CYCLES AT STRESS RANGE 50 %		

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	APPD ENGRG	APPD GOVT



MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54794	DESIGN VERIFICATION TEST (70)	1
		LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54794	LM-4 (34)	1

PART NO. LDW280-18505-11

GAEC SCH NO. 51

NO. OF ACTIVE COILS: 28

NO. OF TOTAL COILS: 30

ENDS TO BE CLOSED AND GROUND SQUARE

DIRECTION OF COILING OPTIONAL

TOLERANCE ON PROPORTIONATE LOAD ± 10% UP TO FROM SOLID HEIGHT

SPRING TO OPERATE INSIDE OF .348 DIA; OUTSIDE OF .245 DIA

STRAIN RELIEVE AFTER FORMING. MAGNAFLUX IF WIRE DIA IS GREATER THAN .063

INSPECTION TEST LOAD AT 1.183 INCHES TO BE 3.50 LBS ± [illegible]%

FINISH: PER LSP-14-10300 TYPE II

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18505-11	E	MUSIC WIRE	QQ-W-470	

WORK PKG FUNCTION NO 111

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH
NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS — DECIMALS — ANGLES
±1/32 ±.010 ±0°30'

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA-586)

GRUMMAN REC INFO	PRIM NO.		
	207	HF-001 MP 16-	3/1/68

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	MAJUK	RELIABILITY	
LAYOUT BY	MAJUK		
CHECKED BY	Bersted 1-29-68		
GR LEADER	Thompson 2/21/68		
VEH DES INT	J. Cavatore 2/21/68		
STRUCT	NM W/H 2/27/68		
STRUCT	TEP 2/27/68	PROJ ENGR	J. Cavatore 2/21/68
WEIGHTS		RELEASE	L. Marsh 3-1-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING - DESCENT STAGE
SCIENTIFIC EQUIP. BAY THERMAL
DOOR LOCK MECH

SIZE	CODE IDENT NO.	
B	26512	LDW280-18505

SCALE NONE

SHEET 1 OF 1

ENG 77.12 9-64

CDR 3-1-68

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18505 | EO NO. A1

CONTROL INFO NO. LM-2-4632

ON -11
CHANGE FINISH BOX TO READ: PER LSP-14-10300 TYPE II SEE NOTE 1

IN FLD/DWG ADD:

NOTE 1 THE FOLLOWING STEPS, INCLUDING GENERAL REQUIREMENTS OF LSP-14-10300, SHALL BE FOLLOWED IN THE APPLICATION OF TYPE II HEAT CURED DRY FILM LUBRICANT TO QQ-W-470 (CARBON STEEL) MUSIC WIRE.

1. PREPARATION OF SURFACE
   - a VAPOR DEGREASE PER LSP-14-7010 OR SOLVENT CLEAN PER LSP-14-7011
     NOTE: SAND OR GRIT BLAST OF ANY TYPE OR DEGREE IS NOT PERMISSABLE.
   - b APPLY PHOSPHATE PER LSP-14-9022 EXCEPT THAT RELIEF OF HYDROGEN EMBRITTLEMENT SHALL BE ACCOMPLISHED BY BAKING AT 360°F ±10°F FOR 3 HOURS ±10MIN.
2. APPLY TYPE II LUBRICANT PER LSP-14-10300
3. CURE BY BAKING AT 360°F ±10°F FOR 2 HOURS ±10MIN.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

(2)

REASON FOR EO: CHEMICAL PROCESS FOR APPLICATION OF TYPE II LUBRICANT TO QQ-W-470 NOT INCLUDED IN LSP-14-10300 RTE PLANT 22 DEPT 131 S/N 392

DESCRIPTION OF EO: ADDED "SEE NOTE 1" TO FINISH BOX
ADDED NOTE 1 TO FLD/DWG

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) ~~THRU~~	
		LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	4-3-68	4/20			4/3/68	4/4/68	4/20	4-4-68
	MAR25	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C

DRAWING TITLE: SPRING - DESCENT STAGE - SCIENTIFIC EQUIP. BAY THERM. DOOR LOCK MECH

DRAWING NO. LDW 280-18505

EO NO. A1

ISSUED BY LIAISON G.S. BRONSON 3604 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 942
CONTROL INFO NO. LDW280 B 3368

FOR THE FOLLOWING PARTS ADD TM-5/R(5) REQMTS., N/A LDW280-54794 FOR QUANTITIES NOTED.

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280-18471-11	SEE DWG.	1	A2 ✓
-18505-11		1	A3 ✓
-54638-1		1	A2
-54639-5		1	A2
-66502-1		1	A2
-66503-1		2	A1
M71509-11		2	A1
M17794-11		1	A1
M17795-11		1	A1
M17796-11		1	A1
LDW280M17799-11	SEE DWG.	1	A1

PART NO. *	TITLE	REQD/MOD	CHG. NO.
LDW280M17805-11	SEE DWG.	1	A1
M17834-13		2	A3
M17839-11		1	A1
M17891-11		1	A1
M17892-11		1	A1
M17893-11		1	A2
M17946-11		1	A2
M17947-11		1	A1
M17948-11		1	A1
M17949-11		1	A2
M17950-11		1	A1
M17951-11		1	A1
LDW280M17965-11	SEE DWG.	1	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3075 CCA 586 PKG 2D	(5)

REASON FOR EO: ADD' TM-5/R(5) REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(5) REQMTS

GAEC EO RELEASE: 5/16/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JMS						
✓		NOT REQD.		DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-16-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	942

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280		EO NO 1350
CONTROL INFO NO. LDW280B 7438		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506	A3	
-18507	B1	
-18512	B2	
-18513	A6	
-18514	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/9/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/[illegible]/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1350

032869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1554
CONTROL INFO NO. LDW 280B 8118		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18478	SEE DWG	A4
✓ 487		A5
✓ 489		A4
✓ 490		B2
✓ 492		A3
✓ 500		A3
✓ 505		A5
LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO
NEW DYNAMIC TEST VEHICLE
REQ'D FOR ~~EXTENDED~~ TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE	
S.B.	8-13-69
JK	8/13/69
Bauman	8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY	PBT				N		
DATE	7-29-69			7/29/69	8-2-69		7/31/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1831
CONTROL INFO NO. LDW280B9859

FOR DRAWINGS LISTED WITH DASH NO.S * AND NEXT ASSEMBLY LDW280-54794 DELETE LTA-11(23) EFFECTIVITY.

DWG. NO. *	CHANGE NO.	DWG. NOMENCLATURE	N/A
LDW280-18505-11	A6	SEE DWG.	LDW280-54794
LDW280-54639-5	A6		
LDW280M17794-11	A4		
LDW280M17795-11	A5		
LDW280M17796-11	A4		
LDW280M17804-11, -13, -15, -17, -23, -25, -27, -29, -31	A10		
LDW280M17834-13	A6		
LDW280M17839-11	B3		
LDW280M17990-11	B4	SEE DWG.	LDW280-54794

* APPLICABLE DASH NO.'S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 99 (5)

REASON FOR EO: PARTS NOT REQUIRED FOR DROP TEST [LTA-11(23)]

DESCRIPTION OF EO: FOR DASH * DELETED LTA-11(23) EFF FOR N/A LDW280-54794.

GAEC EO RELEASE: JK 2/6/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RJT				W/H		RJT	
DATE	2-3-70			2/3/70	2/4/70		2-4-70	2/6/70

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1831

CDR 02 06 70

ISSUED BY A. GROSS / R. CLARK SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18506

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	2
		LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
LM	LDW280-54679	LM-4 (34)	2
PART NO. LDW280-18506-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1EA
		LM-15 (4	1EA
		LM-14 (4	1EA
		LM-13 (4	1EA
		LM-12 (42)	1EA
		LM-11 (41)	1EA
		LM-10 (40	1EA
		LM-9 (39)	1EA
		LM-8 (3	1EA
		LM-7 (37)	1EA
		LM-6 (3	1EA
		LM-5 (35)	1EA
LM	LDW280-54679	LM-4 (34	1EA
PART NO. LDW280-18506-11, -13 -15 & -17		GAEC SCH NO. 51	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO	
		PRIM NO.	VK001
LAST DASH NO. USED	-19	207	1/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

D	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1433 CCA586	

CONTRACT NO. NAS 9-1100

DRAWN BY	F. HIPPLER 12-27-67	RELIABILITY	
LAYOUT BY	G. HANSMANN 1-3-68		
CHECKED BY	1·2·68		
GR. LEADER	Thorjisen 1-3-68		
VEH DES INT	1/4/68		
STRUCTURES	WB 1/5/68	PROJ ENGR	J. Pusateri 1/4/68
STRUCTURES	FEB 1/5/68	REL GROUP	Taghove 1-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-SCIENTIFIC EQUIP BAY
UPPER DECK - CABLE BRACKET SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18506
SCALE	NONE	SHEET 1.00 OF 3

CDR 1-5-68

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18506-19	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 3	T6	38	
	-17			BRACKET				.032 x 3 x 4	T6	38	
	-15	↕		BRACKET	↕	↕	↕	.032 x 3 x 4	T6	38	
	-13			BRACKET				.032 x 5 x 6	T6	38	
	LDW280-18506-11	E		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 5 x 6	T6	38	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18506

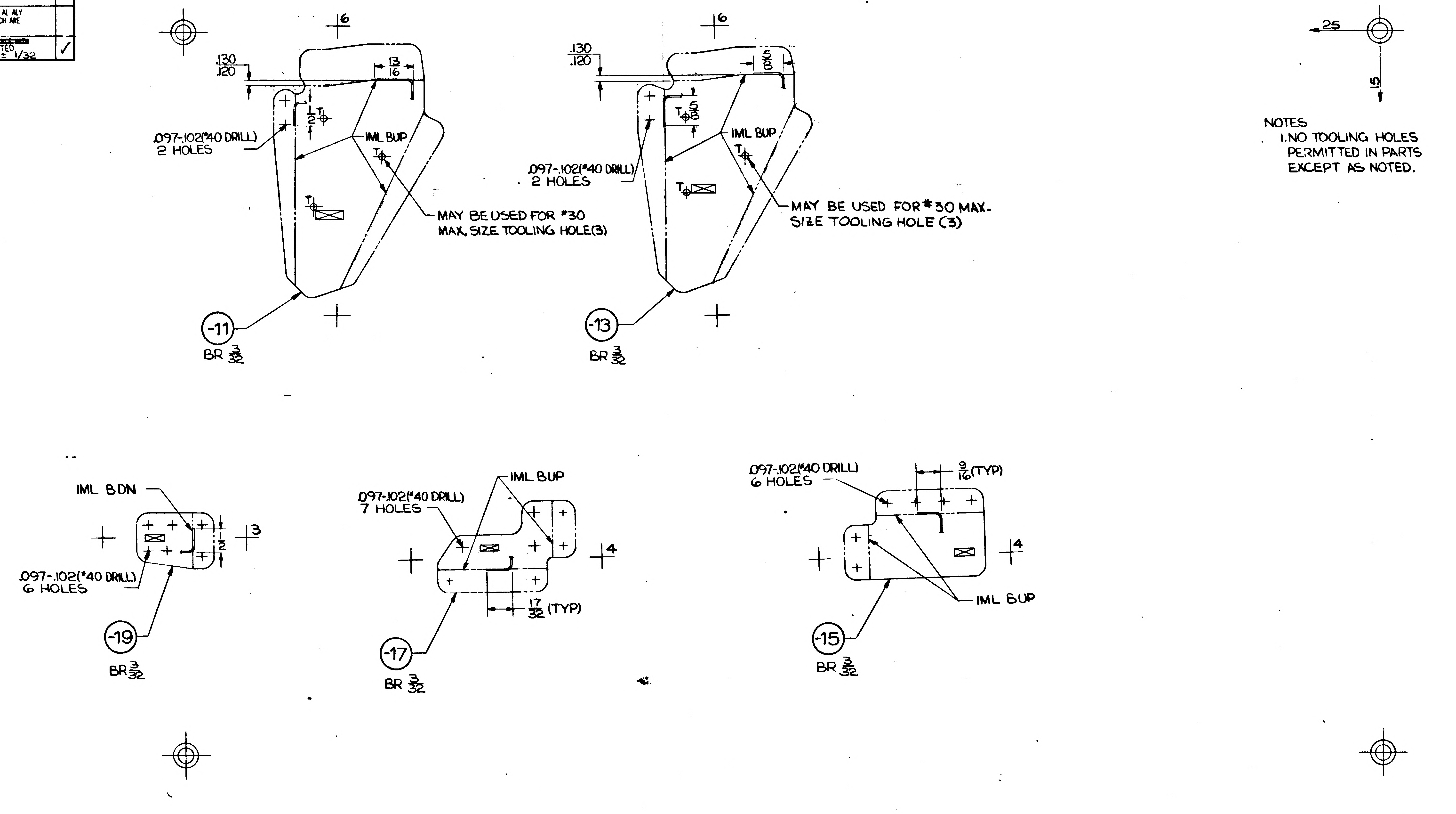
SCALE NONE | SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	☐
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
~~INSTALL RIVETS IN ACCORDANCE WITH~~ TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



6
.130
.120
13/16
T
1/2
.097-.102(#40 DRILL)
2 HOLES
IML BUP
T
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLE(3)
T
-11
BR 3/32
6
.130
.120
5/16
T
5/8
IML BUP
T
.097-.102(#40 DRILL)
2 HOLES
T
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLE (3)
-13
BR 3/32
25
15
IML BDN
1/2
3
.097-.102(#40 DRILL)
6 HOLES
-19
BR 3/32
IML BUP
.097-.102(#40 DRILL)
7 HOLES
4
17/32 (TYP)
-17
BR 3/32
.097-.102(#40 DRILL)
6 HOLES
9/16 (TYP)
4
IML BUP
-15
BR 3/32

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18506
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW 280-18374-19	SEE DWG	4	A2
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2H (5)

GAEC C EO RELEASE JK 5/17/68

REASON FOR EO: ADD TM-5/R(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY — DATE: 5/13/68 VDI; SUPPORT; RELIAB. GROUP; GROUP LEADER 5-13-68; STRESS GROUP 5/13/68; LIAISON ENGRG; PROJ ENGRG 5/13/68; 5-17-68

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

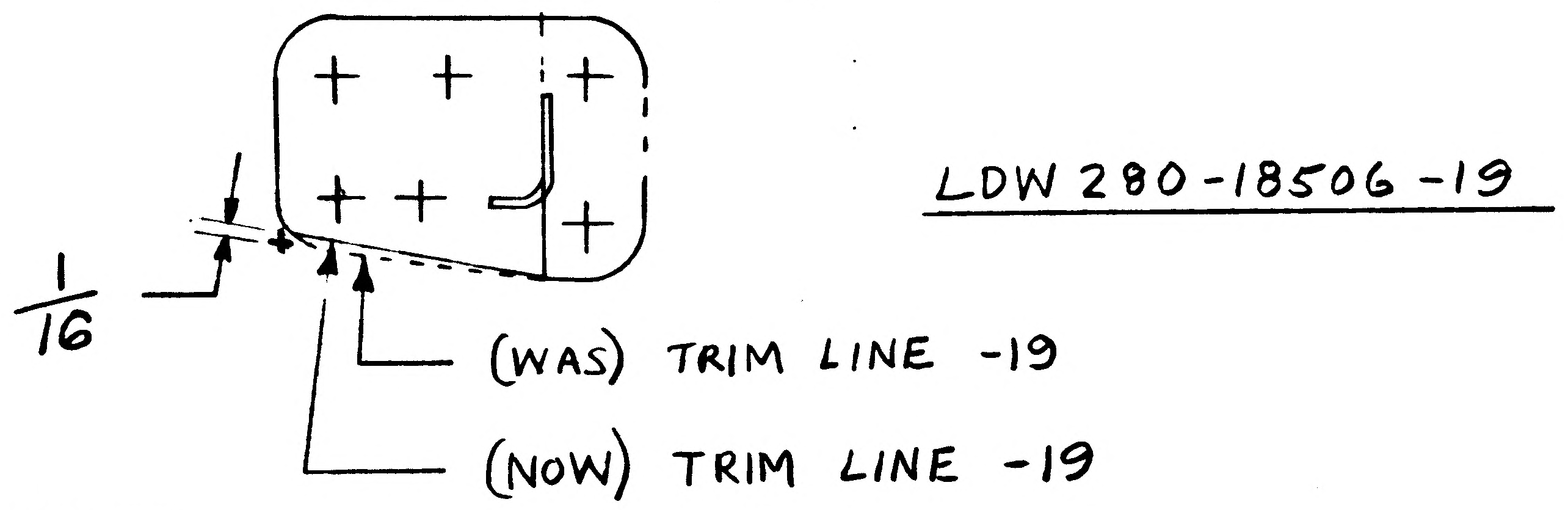
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18506 | EO NO. A2
CONTROL INFO NO. LM-2-4945

NOTE: ALL DIMENSIONS ARE FOR
LOFTING PURPOSES ONLY
DO NOT INCORPORATE



NOTE: ALODINE REWORKED
AREAS F/U*76

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA1H1 CCA586 PKG 13, LCD 3075 CC586 PKG 20 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PERMIT WASHER INSTALLATION	ON-19, IN F/D REVISED TRIM	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM15(45)	
		TM-5/R(65)	
		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	9/12/68				9.12.68	9/12/68		
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: BRACKET, DESCENT STAGE, SCIENTIFIC EQUIP BAY, CABLE BRACKET SUPPORT
DRAWING NO.: LDW280-18506
EO NO.: A2

ISSUED BY LIAISON J. KAST 9/10/68 x3605 SECTION V D I GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1350
CONTROL INFO NO. LDW280B 7438		

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506 ✓	A3	
-18507	B1	
-18512	B2	
-18513	A4	
-18514	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/9/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1350

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280		EO NO. 1554
CONTROL INFO NO. LDW 280B 8118		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18478	SEE DWG	A4
✓ 487		A5
✓ 489		A4
✓ 490		B2
✓ 492		A3
✓ 500		A3
✓ 505		A5
✓ LDW 280-18506	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 36 & 37

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	P&T				M			Bauman
DATE	7-29-69			7/29/69	8-2-69		7/2/69	8/15/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1554

8-26-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280
EO NO. 1650
CONTROL INFO NO. LDW280B 8443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 -18374	SEE DRAWING	LDW280-54679	A6
/	-18375		-54679	A6
/	-18513		-54679	A8
/	-18489		-54679	A5
/	-18460		-54679	A6
/	-18461		-54679	B2
/	-18469		-54679	A4
/	-18470		-54679	A6
/	-18506		-54679	A5
	M17884		-54679	B2
	-18560		-54679	A5
	LDW 280 -18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-26-69; JK 8/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK NO SCRAP

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					W/A			
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/26/69
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1650

ISSUED BY A. FURIO X86046 F2669
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LE0280

EO NO. 1866

CONTROL INFO NO. LDW280C0198

FOR THE FOLLOWING INSTL. & DETAILS WITH N/A* REMOVE LTA-3DR/1(460) REQMTS.:

DWG. NO. & DASH NO.'s.	CHANGE NO.	N/A	DWG. NOMENCLTR.
LDW280- ~		~	SEE DWG.
✓ -18374-19(4) **	B1	*LDW280-54679	
✓ -18375-12,-17(4),-19 **	A8		
✓ -18489-11,-13,-15(2),-17,-18,-19 **	A6		
✓ -18460-17,-19,-21,-23,-25 **	A8		
✓ -18461-13(2),-15(2),-19,-21,-22 **	B4		
✓ -18469-11,-13(2),-15(2),-17(2),-19(2) **	A5		
✓ -18470-11,-13,-15,-19,-21 **	A7		
✓ M17884 -13-1(2) **	B3		
✓ LDW280-18506-11,-13,-15,-17,-19(2) **	A6	LDW280-54679	SEE DWG.

* APPLICABLE N/A

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 70 PG. 12

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR** REMOVED LTA-3DR/1 (460) REQUIREMENTS FOR N/A LDW280-54679

(R) GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY					NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LE0280	1866

CDR.032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18507 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-235.9	DVT (70)	1
LFM 127		LTA-8 (18)	1
LM		TM5/R(65)	1
LM		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
LM	LDW280-23519	LM-4(34)	1
PART NO. LDW280-18507-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23519	LTA-3 (13)	1
PART NO. LDW280-18507-13		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED	
LAST DASH NO. USED	-15

GRUMMAN REL INFO A
PRIM NO. 207 JK(001) ME-1A-4/22/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011 | CCA668

CONTRACT NO. NAS-9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	GARRAFFO 12-8-67
LAYOUT BY	J. CLARK
CHECKED BY	M 12·13·67
GRP LEADER	Thorgersen 12-13-67
VEH DES INT	12/13/67
STRUCTURES	12/13/67
STRUCTURES	12/15/67
WEIGHTS	
PROJ ENGR	Pusateri 12/13/67
REL GROUP	12.15/67

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE EJECT.
MECH QUAD II

SIZE B | CODE IDENT NO. 26512 | LDW280-18507 A
SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-66

C.D.R. 12/13/67

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.10,3							INC. E.O. A1	LTA-3 LM-4 THRU LM-15			SEIBERT 10-24-68		
	2	1,1.10,2,3							INC E.O A2	LM-4 THRU LM-15					
	3	1,1.10							INC. LE0280-940	TM-5/2 (65)					
	4	1,1.10		LFM 127					INC. LE0280-941	LTA-8					
	5	1,1.10		Ⓡ					INC. LE0280-1019	DVT (70)					

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18507	A
SCALE	NONE		SHEET 1.10

ENG 77.16 3-66

②

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18507-15		STRUT	AL ALLOY TUBING	WW-T-700/3	2024-T3	.750 O.D.x.049x25	FP	88	
								LDW280-18507-13	E	STRUT	AL ALLOY TUBING	WW-T-700/3	2024-T3	.750 O.D.x.049x30	T62,FP	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T62	AL HEAT TREAT	MIL-H-6088
						FP	ZYGLO	MIL-I-6866
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18507
A
SCALE NONE
SHEET 2.00

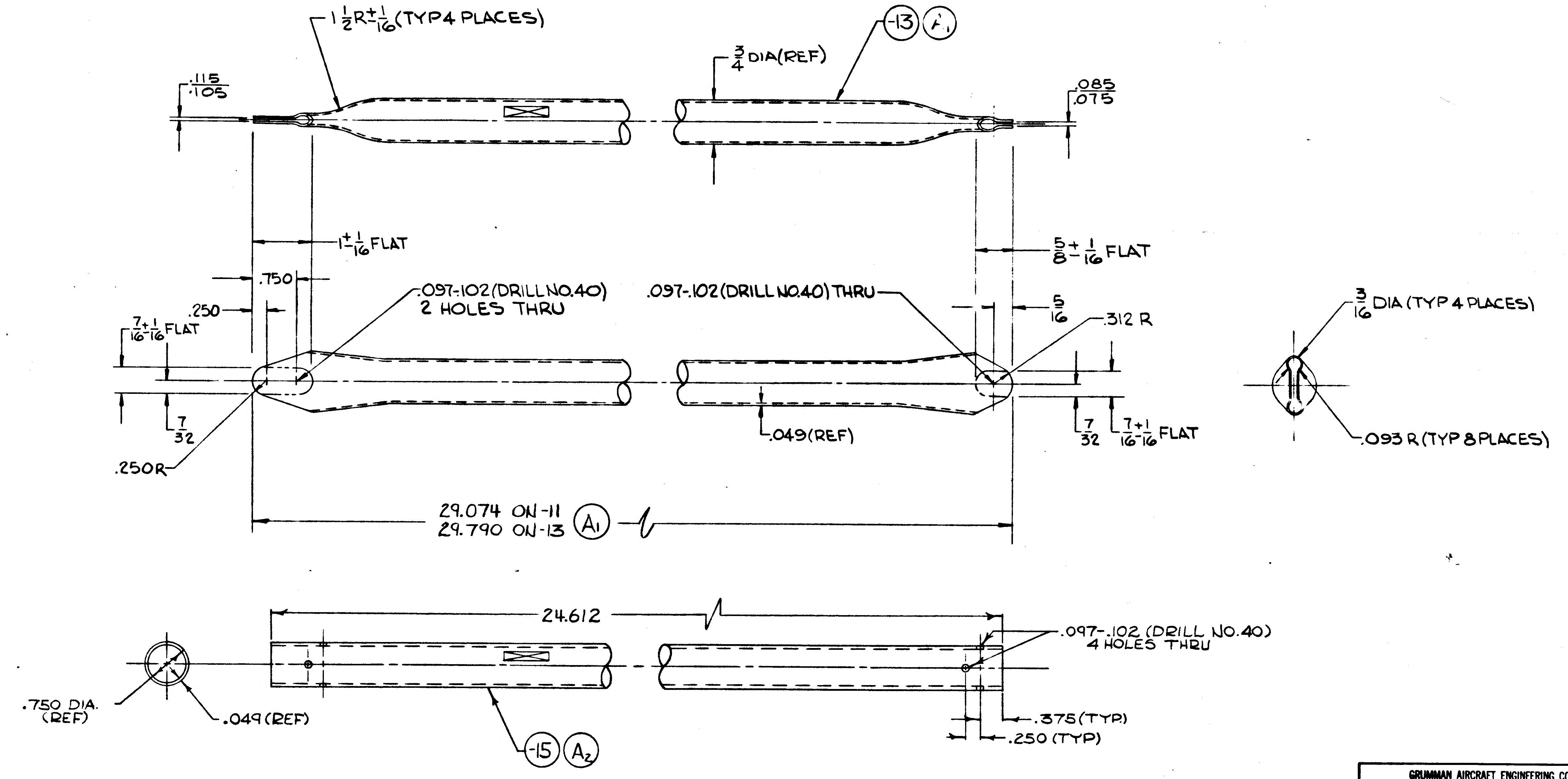
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.


1 1/2 R ± 1/16 (TYP 4 PLACES)
-13 A1
3/4 DIA (REF)
.115/.105
.085/.075
1 ± 1/16 FLAT
5/8 ± 1/16 FLAT
.750
.250
7/16 ± 1/16 FLAT
.097-.102 (DRILL NO.40) 2 HOLES THRU
.097-.102 (DRILL NO.40) THRU
5/16
.312 R
7/32
.250R
.049 (REF)
7/32
7/16 ± 1/16 FLAT
29.074 ON -11
29.790 ON -13 A1
3/16 DIA (TYP 4 PLACES)
.093 R (TYP 8 PLACES)
24.612
.097-.102 (DRILL NO.40) 4 HOLES THRU
.750 DIA. (REF)
.049 (REF)
.375 (TYP)
.250 (TYP)
-15 A2

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18507	A
SCALE FULL		SHEET 3.00	

ENG 73.3 REV. 5-67

LDW280-18507A

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO /350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506 ✓	A3	
-18507 ✓	B1	
-18512	B2	
-18513	A6	
-18514	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD3587 PKG 55 PG 2	CCA 1821	(5)	

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/4/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /350

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1557
CONTROL INFO NO. LDW 280B 8119		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓LDW 280-18507	SEE DWG	B2
512		B3
513		A7
514		B4
515		B3
517		A3
523		A6
524		A4
525		B4
LDW 280-18530	SEE DWG	A3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO
NEW DYNAMIC TEST VEHICLE
REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (5)
SWB 8-13-69
SK 8/15/9
Bauman 8-15-69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/1/69	8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

012
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1781

CONTROL INFO NO. LDW280B7934

FOR*, N/A LDW280-23519 DELETE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF

DWG NO.*	DASH NO*	DWG TITLE	CHG NO.
LDW2[illegible]	-11, 13, 15, 17, [illegible]	SEE DWG	[illegible]
LDW280-18477	-11	SEE DWG	A5
-18490	-11 & -13		B3
-18507	-15		B3
LDW280-18475	-15	SEE DWG	B7

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 72

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR*, DELETED LM-10(40) THRU LM-14 (44) & LTA-11(23) EFF N/A LDW280-23519

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44) &	LTA-11(23)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY					WPA			
DATE	12/4/69			12/5/69	12/10/69		12/4/69	12/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO. LEO 280

EO NO. 1781

CDR 12-12-69

ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18508

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	8
PART NO. LDW280-18508-19 -20, -21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	4
PART NO. LDW280-18508-15, ¢-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3(13)	2
PART NO. LDW280-18508-13&17		GAEC SCH NO. 50	

WORK PKG FUNCTION #111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. 207

JK(001)

MP-16 12/20/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS – ANGLES

$\pm\frac{1}{32}$ $\pm.010$ $\pm\frac{1}{2}°$

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 CCA586

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY BELEV 12-13-67

LAYOUT BY

CHECKED BY G.J. MARZELLA 12-13-67

GP LDR Thoyusen 12-13-67

VDI 12/13/67

STRUC M.S. WJU 12/19/67

STRUC

PROJ ENGR Pusateri 12/13/67

REL GROUP 12/20/67

GRUMMAN AIRCRAFT ENGRG CORP

BETHPAGE, L. I., NEW YORK

TEE

DESCENT STAGE

SCIENTIFIC EQUIP SIMULATOR

SIZE B

CODE IDENT NO. 26512

LDW280-18508

SCALE NONE

SHEET 1.00 OF 3

CDR 12-15

ENG 77.1 12-65

201

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18508-21	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.050X2X2	T6	88	
	-20			CLIP	AL ALLOY SH	QQ-A-250/12	7075	.050X2X3	T6		
	-19			CLIP	AL ALLOY SH	QQ-A-250/12	7075	.050X2X 3	T6		
	-17			TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE#33481 x 4	NONE		
	-15			CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.050X4X13	T6		
	-13			PLATE			7075-T6	.050X3X4	NONE		
	LDW280-18508-11	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X5X13	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18508

SCALE NONE

SHEET 2

ENG 77.2 5-64

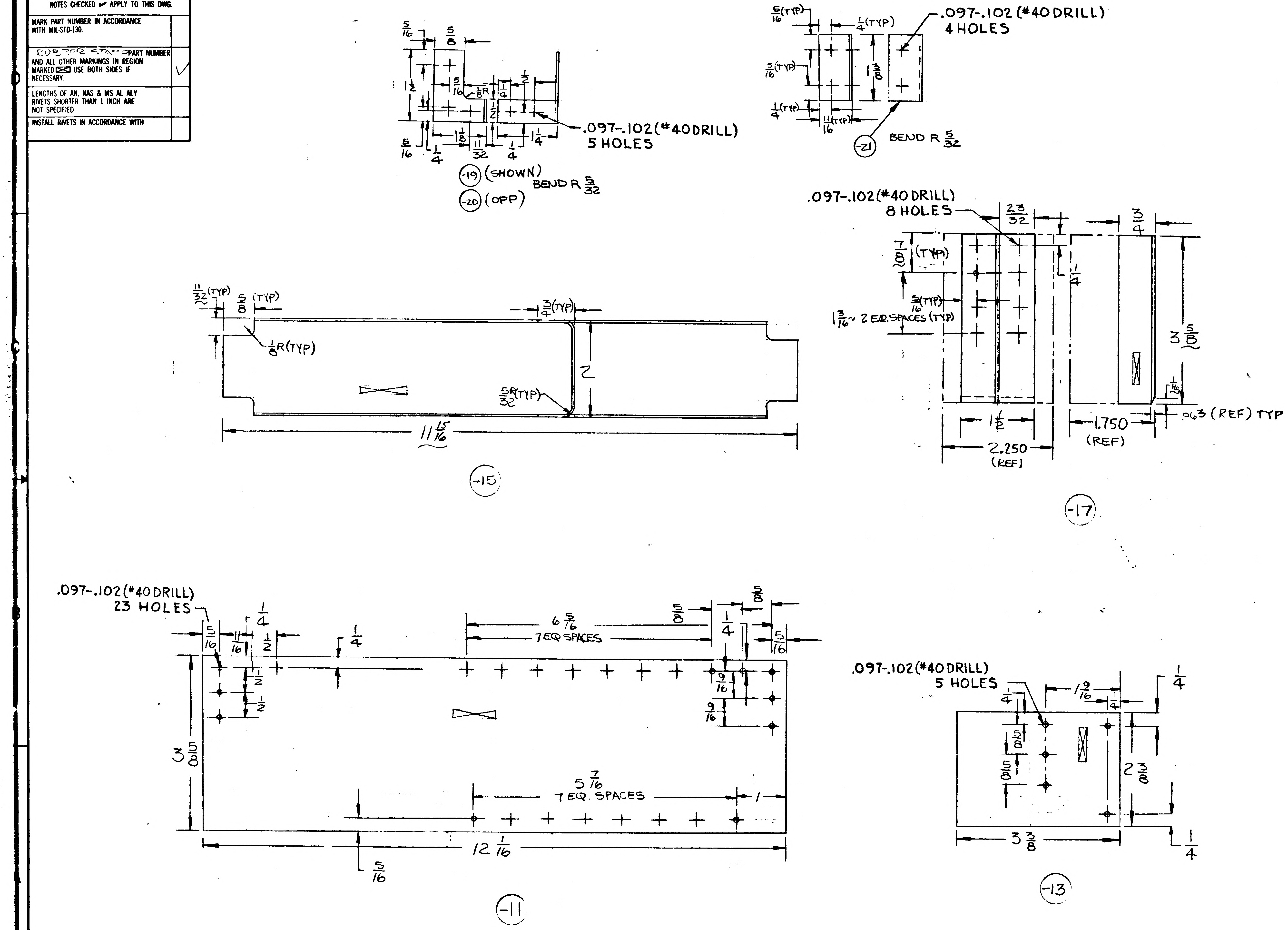
01

NAS 9-1100

LDW280-18508

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐


.097-.102 (#40 DRILL) 5 HOLES
-19 (SHOWN)
-20 (OPP)
BEND R 5/32
.097-.102 (#40 DRILL) 4 HOLES
-21
BEND R 5/32
-15
11 15/16
1/8 R (TYP)
5/32 R (TYP)
.097-.102 (#40 DRILL) 8 HOLES
1 3/16 ~ 2 EQ. SPACES (TYP)
2.250 (REF)
1.750 (REF)
.063 (REF) TYP
3 5/8
-17
.097-.102 (#40 DRILL) 23 HOLES
6 5/16 7 EQ SPACES
5 7/16 7 EQ. SPACES
12 1/16
3 5/8
-11
.097-.102 (#40 DRILL) 5 HOLES
3 3/8
2 3/8
-13

NOTES:
1. CORNER RADII OPTIONAL
2. NO TOOLING HOLES PERMITTED IN PARTS

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18508	
SCALE FULL		SHEET 3	

ENG 73.3 REV 5-67

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1076
CONTROL INFO NO. LDW280B478/-

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

01
NAS 9-1100

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22	(5)
REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST	DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS.			GAEC EO RELEASE: JK 8/1/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	
LM		DVT(70)		REVISE DWG: ✓ RECORD EO:	NOT REQD. REWORK / SCRAP	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					NM			
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1076

7-31-68
ISSUED BY J.TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

LDW280-18509

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	PART NO.	GAEC SCH NO.
LM	LDW280-23589	LTA-3(13)	4	LDW280-18509-13	
LM	LDW280-23589	LTA-3(13)	2 EA	LDW280-18509-11,-12,-15	50

WORK PKG FUNCTION 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00								
REV												
SHEET												
REV												
SHEET												
REV												

LAST SECT LTR USED —
LAST DASH NO. USED -15

GRUMMAN REL INFO
PRIM NO. 207 | JK(001) | MP-16 12/21/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 CCA586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II 5

DRAWN BY LEIFER
LAYOUT BY LEIFER
CHECKED BY G.J. MARZELLA 12-13-67
GP LEADER Thorjusen 12-13-67
VEH DES INT 12/13/67
STRUCT
STRUCT TJS 12/20
PROJ ENGR J. Pucatini 12/13/67
REL GROUP J. Tagliaviro 12-20-67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE
SCIENTIFIC EQUIP SIMULATOR

SIZE B
CODE IDENT NO. 26512
LDW280-18509
SCALE FULL NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-15

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280 18509-15	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 3 x 3	NONE	88	
		-13		CHANNEL			7075	.050 x 4 x 5	T6		
		-12		ANGLE			7075	.050 x 3 x 5			
		LDW280-18509-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050 x 3 x 5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

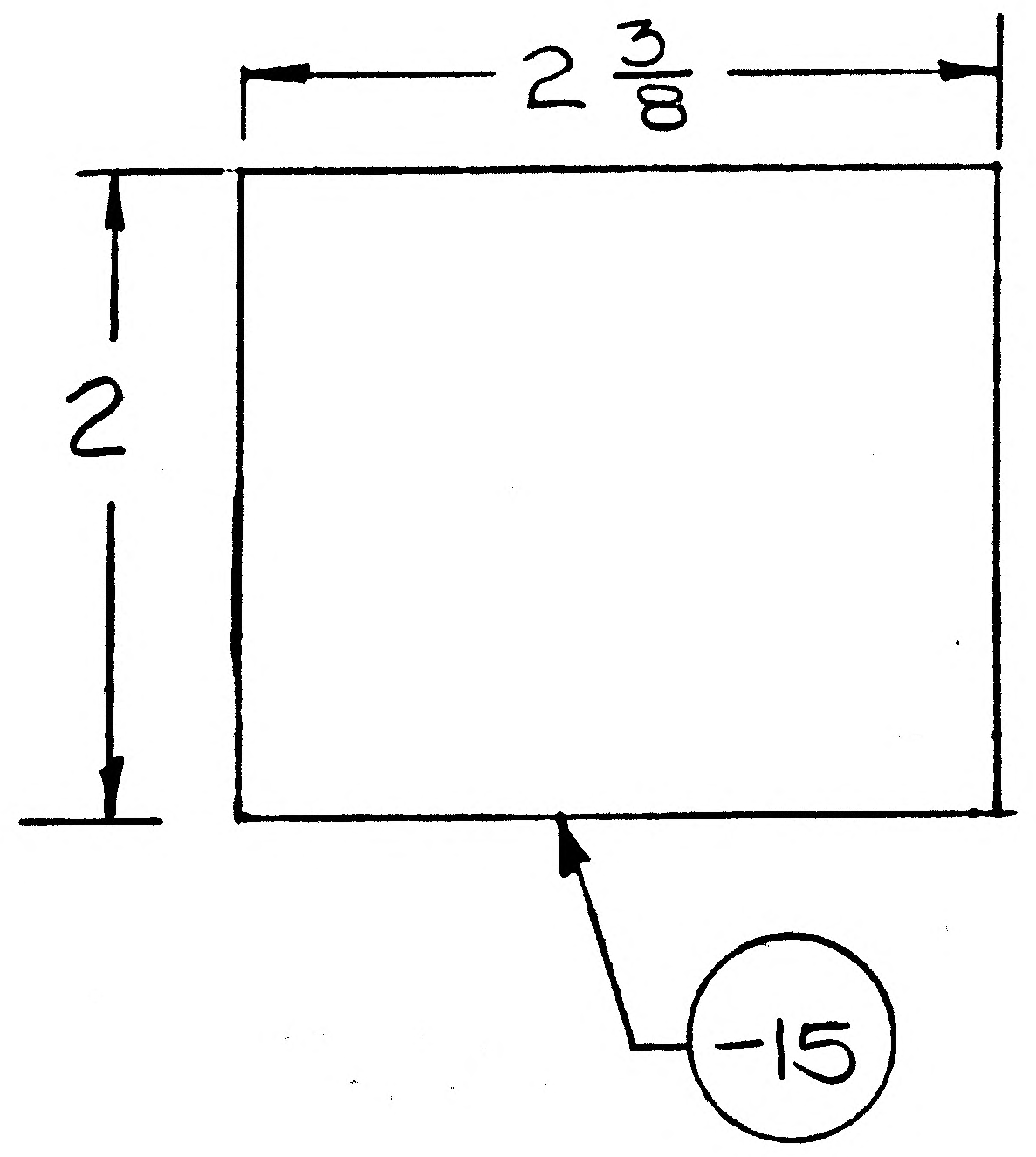
SIZE B CODE IDENT NO. 26512 LDW280-18509

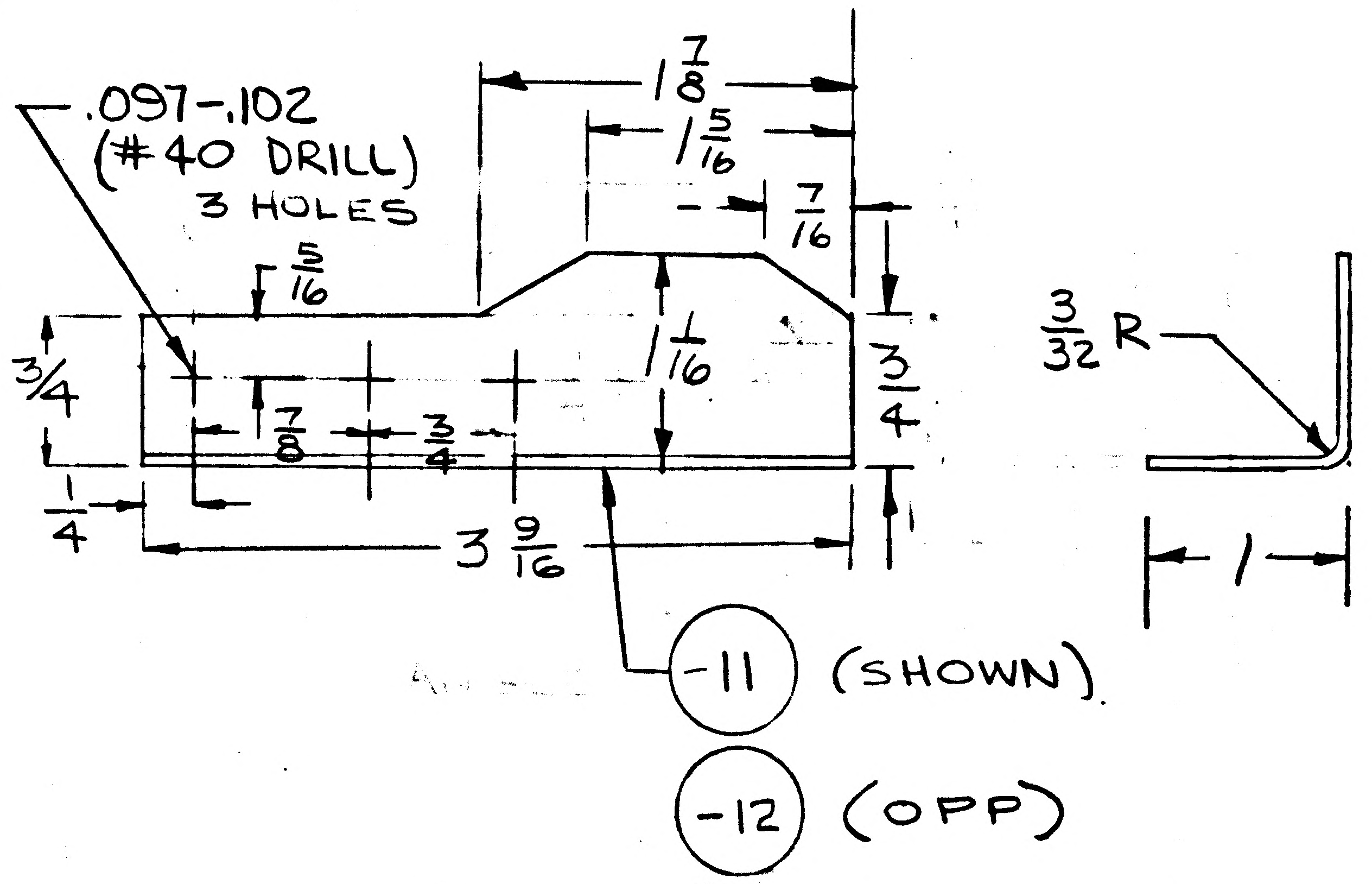
SCALE NONE SHEET 2.00

ENG 77.2 7-66

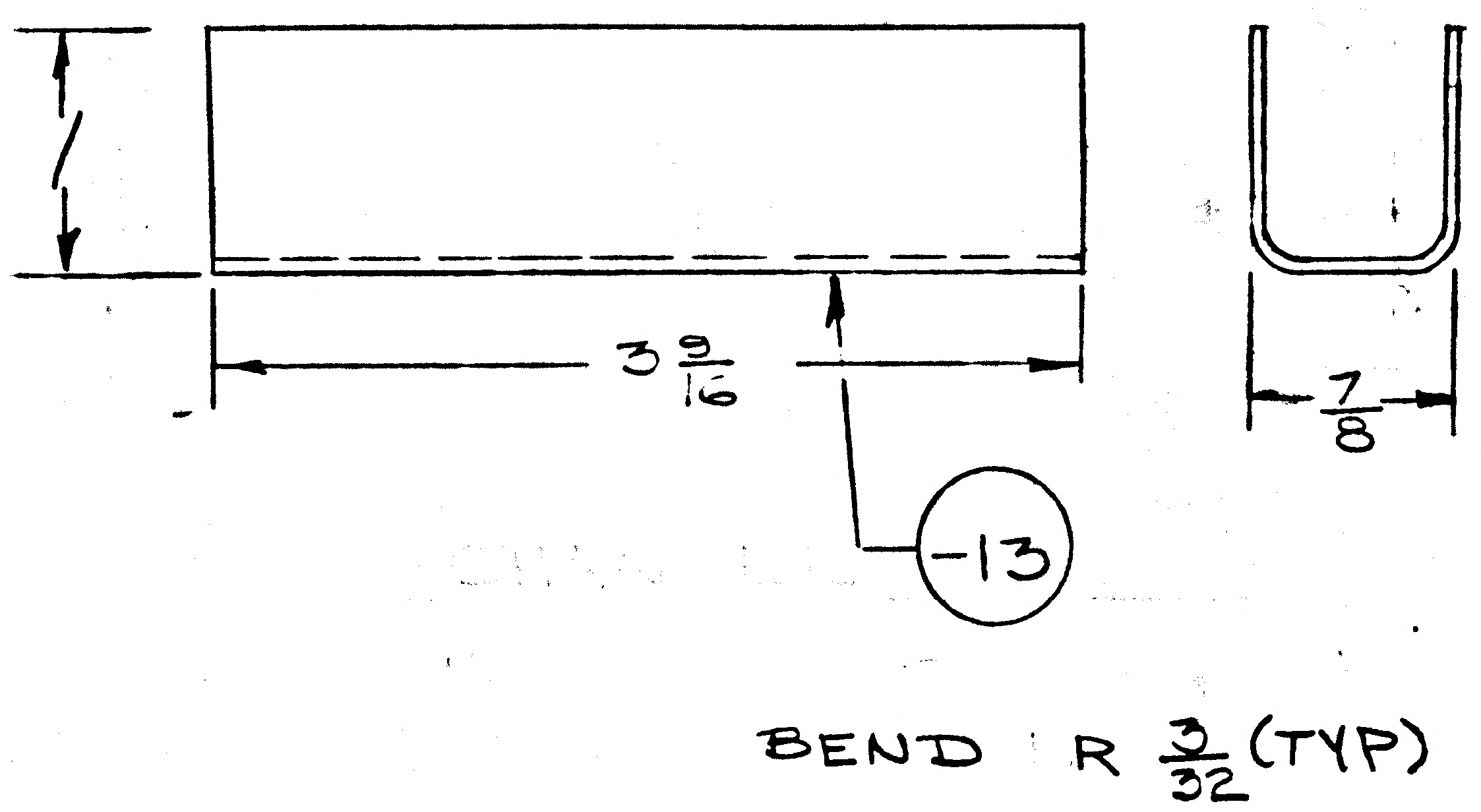
01 NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.





.097-.102
(#40 DRILL)
3 HOLES
1 7/8
1 5/16
7/16
5/16
3/4
1 1/16
3/4
7/8
3/4
1/4
3 9/16
3/32 R
1
-11 (SHOWN)
-12 (OPP)



1
3 9/16
7/8
-13
BEND R 3/32 (TYP)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18509
SCALE FULL		SHEET 3.00

ENG 73.1 6-64

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO 280	EO NO.	1076
CONTROL INFO NO.	LDW280B4781-		

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1
-18496-13 -17 -21 -18496-22		A2
-18497-11 -12 -13 -14 -15 -18497-17		A1
-18498-11 -18498-13 -18498-15		A3
-18499-11 -18499-13		A1
LDW280-23584-1	SEE DWG.	A1

PART No. (*)	TITLE	CHG No.
LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18509-11 -12 -13 -18509-15		A1
-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-23605-3 -23605-4		A3
-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 DKG 22	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC IC EO RELEASE
SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB, QUAL TEST	ON (*) ADDED DVT (70) REQMTS.	JK 8/1/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD.	

APPROVED BY					NM				
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1076

7-31-68
ISSUED BY J.TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-18510

LM	LDW28.)-23589	LTA-3(13)	2 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18510-13,-17,-18		GAEC SCH NO.	

LM	LDW280-23589	LTA-3(13)	4 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18510-15 &-19		GAEC SCH NO.	

LM	LDW280-23589	LTA-3(13)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18510-11, & -12		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO		
		PRIM NO.	K(001)	
LAST DASH NO. USED	-19	207	MP-16-	12/26

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

D	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
CCA586 LCD1433	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LEIFER		
LAYOUT BY	LEIFER		
CHECKED BY	MARZELLA 12-16-67		
GRP LEADER	P. THORJUSEN 12-18-67		
VEH DES INT	12/18/67		
STRUCT	12/19/67	PROJ ENGR	12/21/67
STRUCT	12/20	REL GROUP	12/21/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE
SCIENTIFIC EQUIP SIMULATOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18510
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

ok

CDR 12-18-67

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18510-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 x 4 x 4	NONE	88	
		-18		BRACKET	ALALLOY SH	QQ-A-250/12	7075	.063 x 3 x 5	T6		
		-17		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.063 x 3 x 5	T6		
		-15		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T651	DIE #69222 x 4	NONE		
		-13		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 1 x 4			
		-12		ANGLE				.050 x 4 x 19			
		LDW280-18510-11	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 x 4-19	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP-14-9030
T6	AL HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18510

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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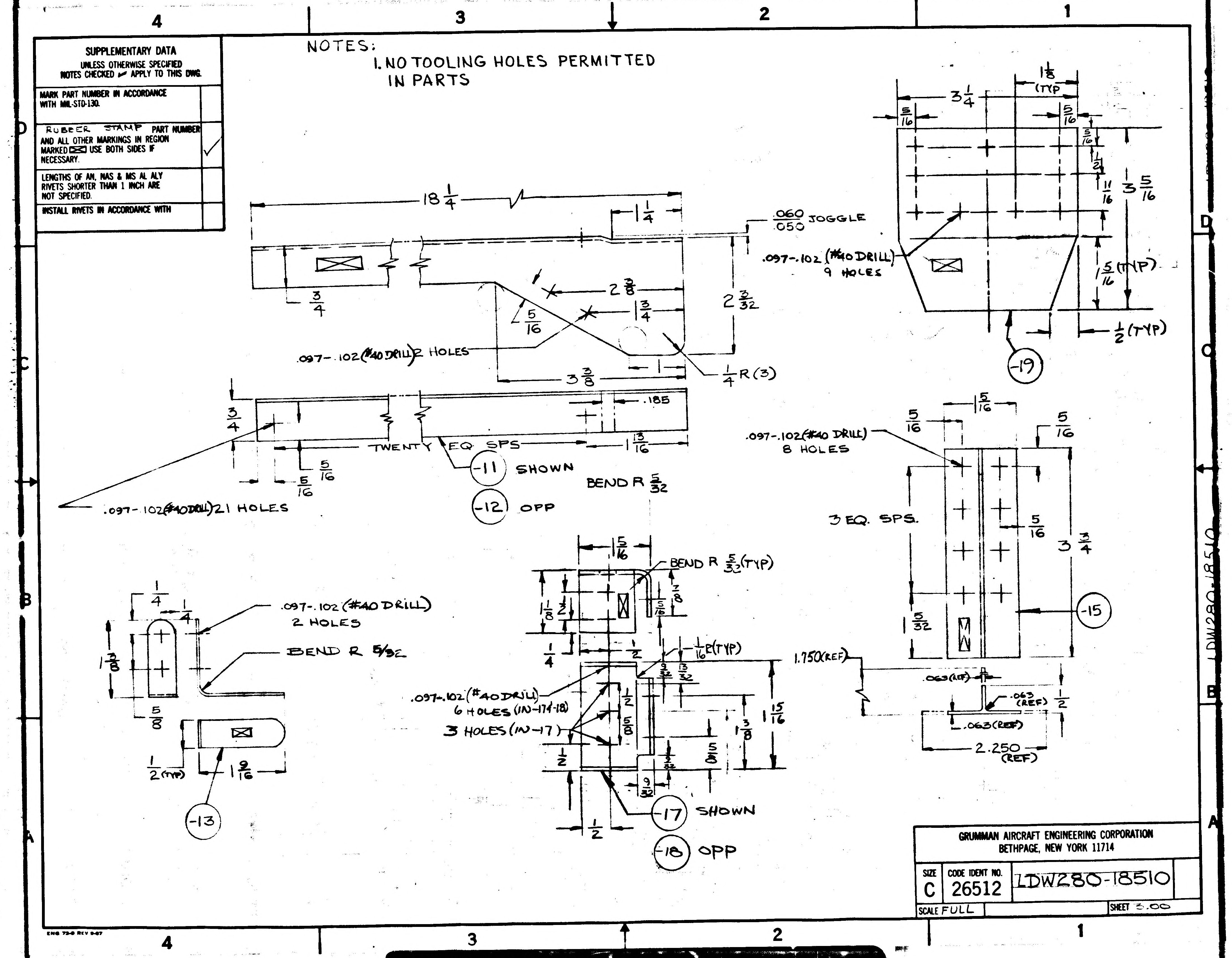
NAS 9-1100



18 1/4
1 1/4
.060 .050 JOGGLE
3/4
2 3/8
1 3/4
5/16
2 2/32
.097-.102 (#40 DRILL) 2 HOLES
3 3/8
1/4 R (3)
3/4
.185
TWENTY EQ SPS
1 13/16
5/16
-11 SHOWN
-12 OPP
BEND R 5/32
.097-.102 (#40 DRILL) 21 HOLES
3 1/4
1 1/8 (TYP)
3 5/16
.097-.102 (#40 DRILL) 9 HOLES
1 5/16 (TYP)
1/2 (TYP)
-19
.097-.102 (#40 DRILL) 8 HOLES
3 EQ. SPS.
3 3/4
-15
1.750 (REF)
.063 (REF)
2.250 (REF)
BEND R 5/32 (TYP)
1/16 R (TYP)
.097-.102 (#40 DRILL) 6 HOLES (IN -17 & -18)
3 HOLES (IN -17)
-17 SHOWN
-18 OPP
.097-.102 (#40 DRILL) 2 HOLES
BEND R 5/32
1 3/8
5/8
1/2 (TYP)
1 9/16
-13
LDW280-18510

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBEER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18510
SCALE FULL		SHEET 5.00

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 1076
CONTROL INFO NO. LDW280B4781

FOR THE FOLLOWING PART NUMBERS ADD DVT (70). EFFECTIVITY, QUANTITIES AND NEXT ASSEMBLIES TO BE THE SAME AS LTA-3(13).

PART No. (*)	TITLE	CHG. No.	PART No. (*)	TITLE	CHG No.
LDW280-18491-11 -13 -15 -17 -18491-19	SEE DWG.	A1	LDW280-18508-11 -13 -15 -17 -19 -20 -18508-21	SEE DWG	A1
-18496-13 -17 -21 -18496-22		A2	-18509-11 -12 -13 -18509-15		A1
-18497-11 -12 -13 -14 -15 -18497-17		A1	-18510-11 -12 -13 -15 -17 -18 -18510-19		A1
-18498-11 -18498-13 -18498-15		A3	-23605-3 -23605-4		A3
-18499-11 -18499-13		A1	-18504-11 -13 -15 -17 LDW280-18504-19	SEE DWG.	A3
LDW280-23584-1	SEE DWG.	A1			

01 NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586 PKG 22	(5)

REASON FOR EO: SCIENTIFIC EQUIPMENT SIMULATOR REQD. FOR VIB. QUAL TEST

DESCRIPTION OF EO: ON (*) ADDED DVT (70) REQMTS

GAEC EO RELEASE: JK 8/7/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JJB				NM			
DATE	7/27/68			7/26/68	7/31/68		7/31/68	8-7-68
	VDI							

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1076

7-31-68
ISSUED BY J.TAVARES x1392 SECTION VDI GROUP NO. 280 PL 25

LDW280-18512 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	DESIGN VERIFICATION TEST (70)	4
		LM-15 (45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
		LM-4(34)	4
LM	LDW280-54576	LTA-3(13	4
PART NO. LDW280-18512-11		GAEC SCH NO. 51	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10		2.00		3.00	
REV	A		A		A		A	
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO⁴

PRIM NO. 215 JK(001) MP-161/9/?

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°

B ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433-CCA586

CONTRACT NO. NAS 9-1100

DRAWN BY	F. LEGIDC 1-8-68	RELIABILITY	
LAYOUT BY	A.F. MARZELLA	SUPPORT	J.H.S 1-2-68
CHECKED BY	J.S. 1-8-68		
GRP LDR	P.L.T. 1-2-68		
VEH DES INT			
STRUCT	M.S 1-2-68	PROJ ENGR	J.A.P. 1-2-68
STRUCT	W.J.H. 1-2-68	REL GROUP	BoTTi 1-4-68
WEIGHTS			

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPACER
DESCENT STAGE
SCIENTIFIC EQUIPMENT SUPPORT-INBOARD PIN

SIZE	CODE IDENT NO.		
B	26512	LDW280-18512	A
SCALE NONE		SHEET 1.00 OF 4	

(4)

ENG 77.1 12-65

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		B		✓		EOA1 LCD1433 CCA 586 Ⓐ	EO A1 INITIAL DWG RELEASE PART MADE PER EO.	LTA-3, LM-4 THRU LM-15 & DESIGN VERIFICATION TEST (70)	NOT	REQD	F. LEGIDD 1-8-68	☒	☒

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	SUPPORT				
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18512	A
SCALE NONE		SHEET 1.10 Ⓐ	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18512-11	E		SPACER	AL ALY SH.	QQ-A-250/4	2024-T3	.050 X 2 X 2	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

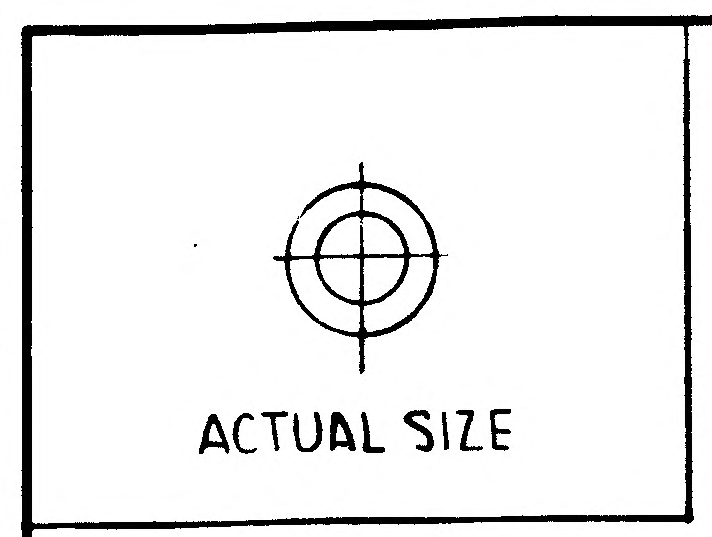
SIZE B
CODE IDENT NO. 26512
LDW280-18512
A

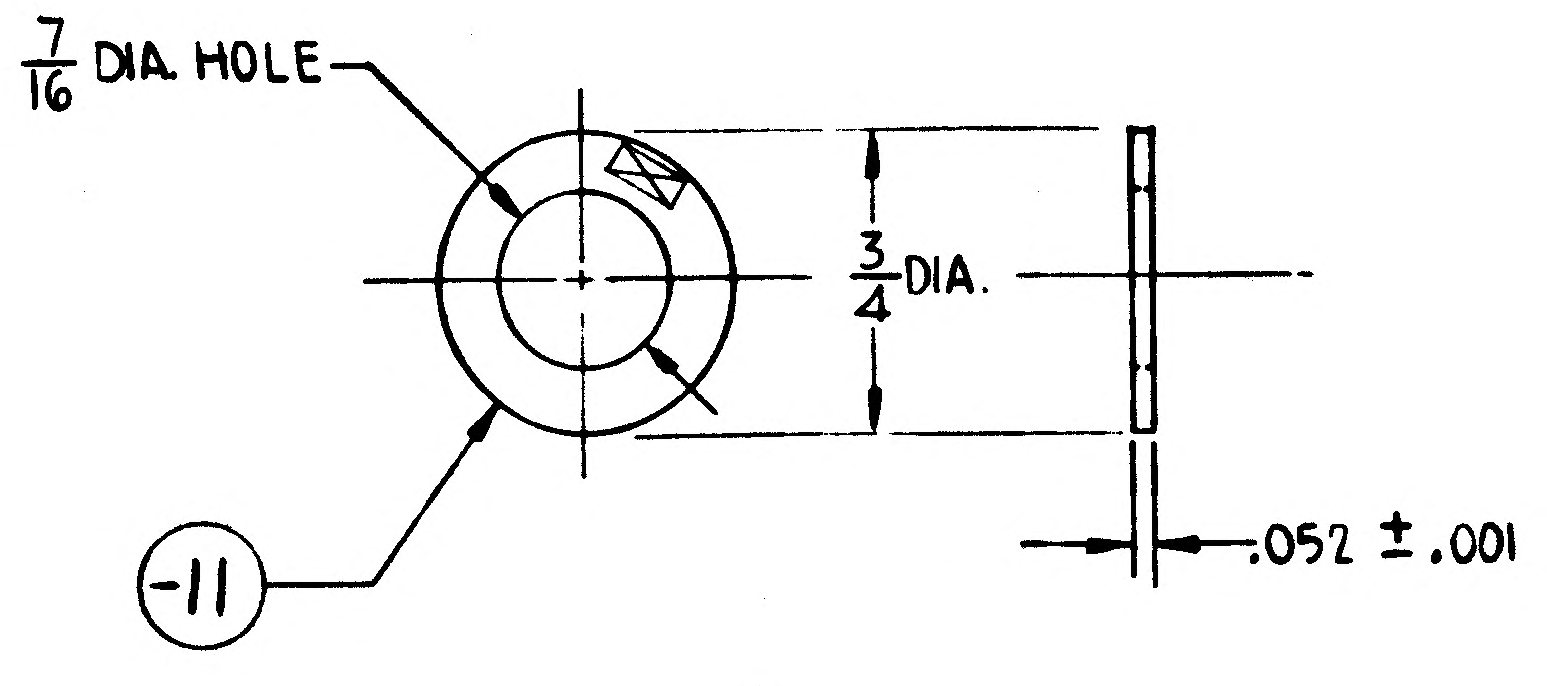
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100





MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE C
CODE IDENT NO. 26512
LDW280-18512
A
LM
MODEL OR END ITEM
SCALE 2/1
SHEET 3.00

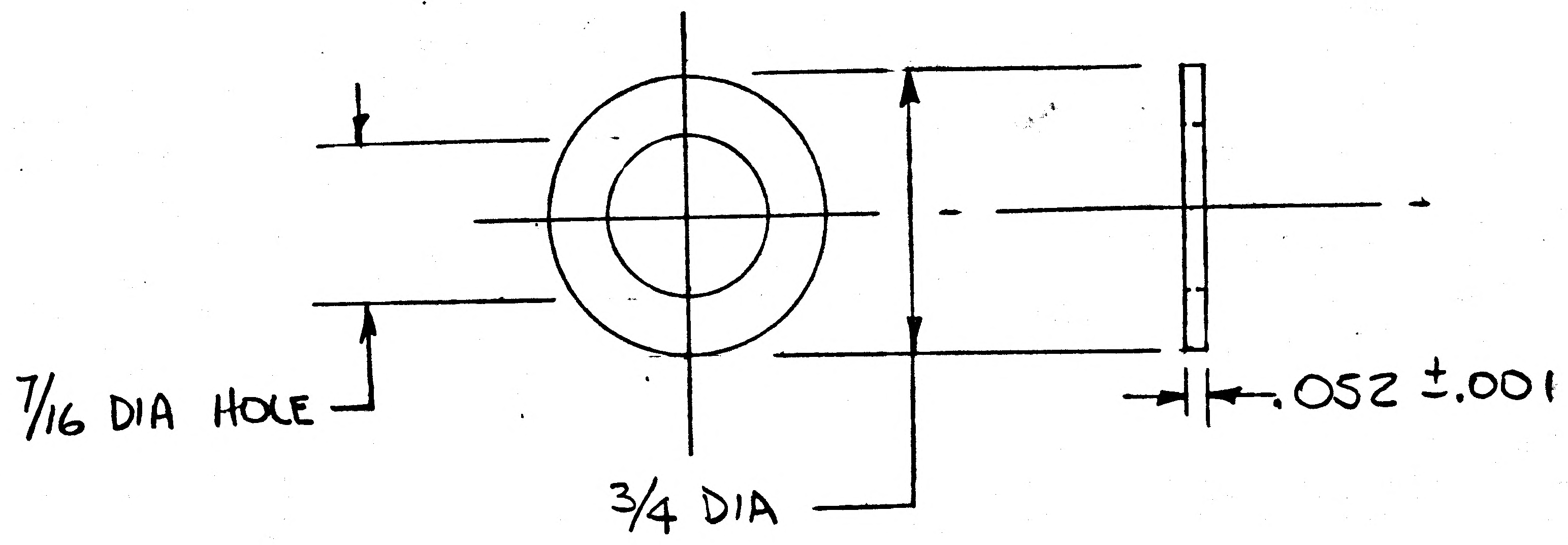
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18512
EO NO. A1
CONTROL INFO NO. LDW28080949

CREATE LDW280-18512-11 SPACER AS SHOWN:
MAT'L 2024-T3 QQ-A-250/4 SHT. FIN #88 I&T=E
N/A=LDW280-54576 4 REQ'D PER VEHICLE



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433 CCA 586 (5)

REASON FOR EO: SEAT FOR INB'D PIN

DESCRIPTION OF EO: EO A1, INITIAL DWG RELEASE. PART MADE PER EO.

GAEC EO RELEASE: JK 1/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3 (13)		
LM	LM-4 (34)	THRU LM-15	(45)
LM	DESIGN VERIFICATION		TEST (70)

DRAWING CHANGE REQD: REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE			1/2/67		1-2-68	1-2-68		1/2/67	1-4-68

PRIORITY: C
DRAWING TITLE: SPACER-DESCENT STAGE-- SCIENTIFIC EQUIPMENT SUP'T-INB'D PIN
DRAWING NO.: LDW280-18512
EO NO.: A1

7-2
ISSUED BY A.F. MARZELLA EXT 9505 SECTION VEH. DES. & INT. GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 943
CONTROL INFO NO. LDW280 B3241	

FOR THE FOLLOWING PART NO'S. ADD TM-5/R(65) REQMTS,
N/A LDW280-54576 FOR QUANTITIES NOTED:

PART NO. *	TITLE	REQD/MOD	CHG. No.	PART NO. *	TITLE	REQD/MOD.	CHG. No.
LDW280-17623-17	SEE DWG.	4	B9	LDW280-18388-11	SEE DWG.	1	·A3
-17623-19		2		-18388-13		1	
-18512-11		4	B1	-18388-14		1	
-17711-25		1	C9	-18388-15		1	
-17711-27		1		-18388-16		1	
-17792-21		1	B9	-18390-11		1	·A3
-17792-23		1		-18390-13		1	
-18340-15		1	·A4	-18390-15		1	
-18342-11		1	A3	-18390-17		2	
-18342-13		1		-18390-19		4	
-18342-15		1		-18391-11		1	·A1
-18342-17		1		-18391-13		1	
-18343-11		1	·A2	-18391-17		1	
-18343-13		1		-18391-19		1	
-18343-15		1		-18391-21		1	
-18343-17		1		-18391-20		1	
-18343-19		2		M17746-11		1	·A3
-18344-11		1	·A3	M17742-13		2	·A4
-18344-13		1		M17742-14		2	
-18344-15		1		M17770-11		1	·A3
-18344-17		1		-18364-13		1	·A2
-18344-19		1		-18364-15		1	
-18344-21		1		-18364-17		1	
-18380-11		1	·A2	-18364-19		2	
-18380-13		1		-18364-21		1	
-18380-15		1		-18392-11		4	·A2
-18380-17		1		M17268-1		2	·C5
-18380-19		1		M17630-1		1	·B5
-18380-21		1		M17741-11		4	·A4
-18380-23		1		M17741-13		4	
-18386-11		1	·A2	M17743-13		4	·A3
-18386-13		1		M17744-13		4	·A3
-18386-15		1		M17745-11		1	·A3
-18386-16		1		M17745-12		1	
-18386-17		1		M17745-13		1	
-18386-19		1		M17747-11		1	·A5
-18387-11		3	·A3	M17781-11		1	·A2
-18387-13		1		M17782-11		1	·A2
-18387-15		1		M17783-11		1	·A1
-18387-17		1		M17784-11		2	·A5
-18387-19		1		M17784-12		1	
-18387-21		1		M17777-11		2	·A2
-18389-11		1	·A4	M17854-11		1	·A2
-18389-15		1		-18478-13		1	·A1
-18389-16		1		LDW280-18478-15	SEE DWG.	1	
LDW280-18389-17	SEE DWG.	1					

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 CCA 586 PKG 2G (5)
REASON FOR EO: ADD TM-5/R(65) REQMTS.	DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.	GAEC C EO RELEASE: 5/16/68	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	
LM		TM-5/R(65)		

DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: NOT REQD	APPROVED BY								
		REWORK	SCRAP	DATE	5/13/68			5-13-68	5/17/68	5/13/68	5/16/68
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~GOVT~~
PRIORITY C	DRAWING TITLE: SEE DWG.							DRAWING NO. LEO 280			EO NO. 943

5-17-68
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506 ✓	A3	
-18507 ✓	B1	
-18512 ✓	B2	
-18513	A6	
-18514	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K 4/14/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/2/69			4-2-69	4-2-69		4/9/69	4/10/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1350

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1557
CONTROL INFO NO. LDW280B 8119

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓LDW280-18507	SEE DWG	B2
512		B3
513		A7
514		B4
515		B3
517		A3
523		A6
524		A4
525		B4
LDW280-18530	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓔ GAEC EO RELEASE (5)
SwB 8-13-69
JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

APPROVED BY								
DATE	7-29-69			7/29/69	8-2-69		8/1/69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

N
Bauman

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ml) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1634
CONTROL INFO NO. LDW280B 8435

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG. NO.
/ LDW280 - 18388	SEE DWG	LDW280 - 54576	A6
/ - 18389		- 54576	B2
/ - 18390		- 54576	A6
/ - 18391		- 54576	A5
/ - M 17745		- 54576	A7
/ - M 17742		- 54576	A7
/ - M 17770		- 54576	A7
/ - 18364		- 54576	A5
/ - 18392		- 54576	A5
/ - 18512		- 54576	B4
M17854		- 54576	A5

DETAIL SPEC REQ ☐ Cl II ENGRG CHG ☐ Cl I ENGRG CHG ☑ LCD 3890 PKG 70 PG 2 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-9
JK 8/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1	(460)

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	8-8-69			8/4/69	8/12/69		8/26/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1634

8-25-69
ISSUED BY A. FURIO X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18513 A

PART NO. LDW280-18513-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	LTA-11(23)	1
		DVT(70)	1
		TM-5/R(65)	1
		LM-14(44)	1
		THRU	1
LM	LDW280-54679	LM-4(34)	1

PART NO. LDW280-18513-23

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54794	LTA-3DR/1(460)	1
		DVT (70)	1
		TM5/R(65)	1
		LM-14(44)	1
		THRU	
LM	LDW280-54794	LM-4 (34)	1

PART NO. LDW280-18513-25, -27

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	LTA-3DR/1(460)	1 EA
		LTA-11(23)	
		DVT (70)	
		TM5/R(65)	
		LM-14(44)	
		THRU	
LM	LDW280-54679	LM-4(34)	1 EA

PART NO. LDW280-18513-11, -13, -15 & -17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 51	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM-5/R(65)	1
LM	LDW280-54679	DVT (70)	1 EA
		LTA-11(23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 FA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54679	LM-4 (34)	1 EA

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET		1.11							
REV		A							
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-27	PRIM NO.	JK(001)
		207	MP-16- 1/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433, CCA586

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	V. NARONIS 12/28/67	RELIABILITY	
LAYOUT BY	G. HANSMANN		
CHECKED BY	D. FASS 1-3-68		
GP. LEADER	Thorjusen 1-3-68		
VEH. DES. INT	J. Strotcomb 1/4/68		
STRUCTURES	WB WH 1/5/68	PROJ ENGR	J. Puwgtin 1/4/68
STRUCTURES	1/5/68	REL GROUP	J. Tagliavia 1-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - SCIENTIFIC EQUIP BAY
UPPER DECK - CABLE BRACKET SPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18513	A
SCALE NONE		SHEET 1.00 OF 5	

ENG 77.1 12-65

CDR 1-5-68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3.00		G		✓		EO A1 LCD 1433, CCA 586	ADDED -19 - ADDED SH. 1.10	LM-4 THRU LM-15 DVT (70)	NOT	REQ'D	W. VAN VORST 7-3-69		
	2	1.00				✓		LEO 280-950 LCD 3075, CCA 586	ON -11, -13, -15, -17, & -19 ADDED TM-5/R (65) REQMTS	TM-5 (65)	NOT	REQ'D			
	3	1.00, 2.00 3.00				✓		EO A3 LCD 1433, LCD 3075 CCA 586	ADDED -21, SCRAPPED -19	LM-4 THRU LM-15 TM-5/R D.V.T		-19			
	4	1.00, 2.00 3.00				✓		EO A4 LCD 1433, LCD 3075 CCA 586.	ADDED -23	LM-4 THRU LM-15 TM-5/R D.V.T.	NOT	REQD			
	5	1.00, 2.00 3.00				✓		EO A5 LCD 2360.	IN FLD (ON-17) REVISED TRIM & ADDED 1/2 DIA. CUTOUT. IN FLD, B/M, & MODEL BLOCK: ADDED -25 & -27	LM-4 THRU LM-15 TM-5 D.V.T	✓		N.D.		
	6	1.00				✓		LEO280-1350 LCD 3587 CCA 1821	DELETED LM-15(45) EFF FROM -11, -13, -15, -17, -21, -23, -25 & -27.	LM-15		✓	BILL OPITZ 4-13-70		
	7	1.00				✓		LEO280-1557 LCD3890	ON -11, -13, -15, -17, -21, -23, -25, & -27 ADDED LTA-11(23) REQMTS.	LTA-11	NOT	REQD			
	8	1.00				✓		LEO280-1650 LCD 3890	ON -11, -13, -15, -17, -21, -23, -25, & -27 ADDED LTA 3DR/1 (460) REQMTS.	LTA-3DR/1	NOT	REQD			
	9	1.00				✓		LEO-280-1832 LCD 3994	FOR -23 DELETED LTA-11(23) EFF FOR N/A LDW280-54794	LTA-11		✓		J.V.	

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18513	A

SCALE NONE SHEET 1.10

7.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	10	1.00 1.11				✓		LE0280-1867 LCD3890	FOR -11, -13, -15, -17, -21 REMOVED LTA-3DR/1 FOR N/A LDW280-54679. ADDED SH 1.11.	LTA-3DR/1		✓	BILL OPITZ 4-13-70	J.V.	
	11	1.00				✓		LCD2360	REF EO A5 EFFECTIVITY LM-4 THRU LM-15, TM-5, DVT S/B LM-4 THRU LM-15, TM-5/R, DVT. JWC 4-28-70	LM-4 THRU LM-15 TM-5/R DVT	✓			4-13-70	

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT
A	5/4/70	5-4-70	WB	5/4/70

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18513	A
SCALE NONE		SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18513-27	E		ANGLE	AL ALLOY SH	QQ-A-250/12	7075-T6	.016 × 2 × 5	NONE	88	
	-25	E		PLATE			7075	.016 × 3 × 5	T6	88	
	-23	E		PLATE			7075-T6	.063 × 1 × 2	NONE	88	
	-21	E		DOUBLER			7075-T6	.032 × 3 × 3	NONE	88	
	LDW280-18513-17	E		PLATE	AL ALLOY SH	QQ-A-250/12	7075	.016 × 5 × 10	T6	88	
	LDW280-18513-15	E		ANGLE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE#22637 × 2 5/8	NONE	88	
	LDW280-18513-13	E		SHIM	AL ALLOY SH	QQ-A-250/12	7075-T6	.063 × 1 × 2	NONE	88	
	LDW280-18513-11	E		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 × 5 × 11	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL ALLOY HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18513 | A

SCALE NONE | SHEET 2.00

'G 77.2 5-64

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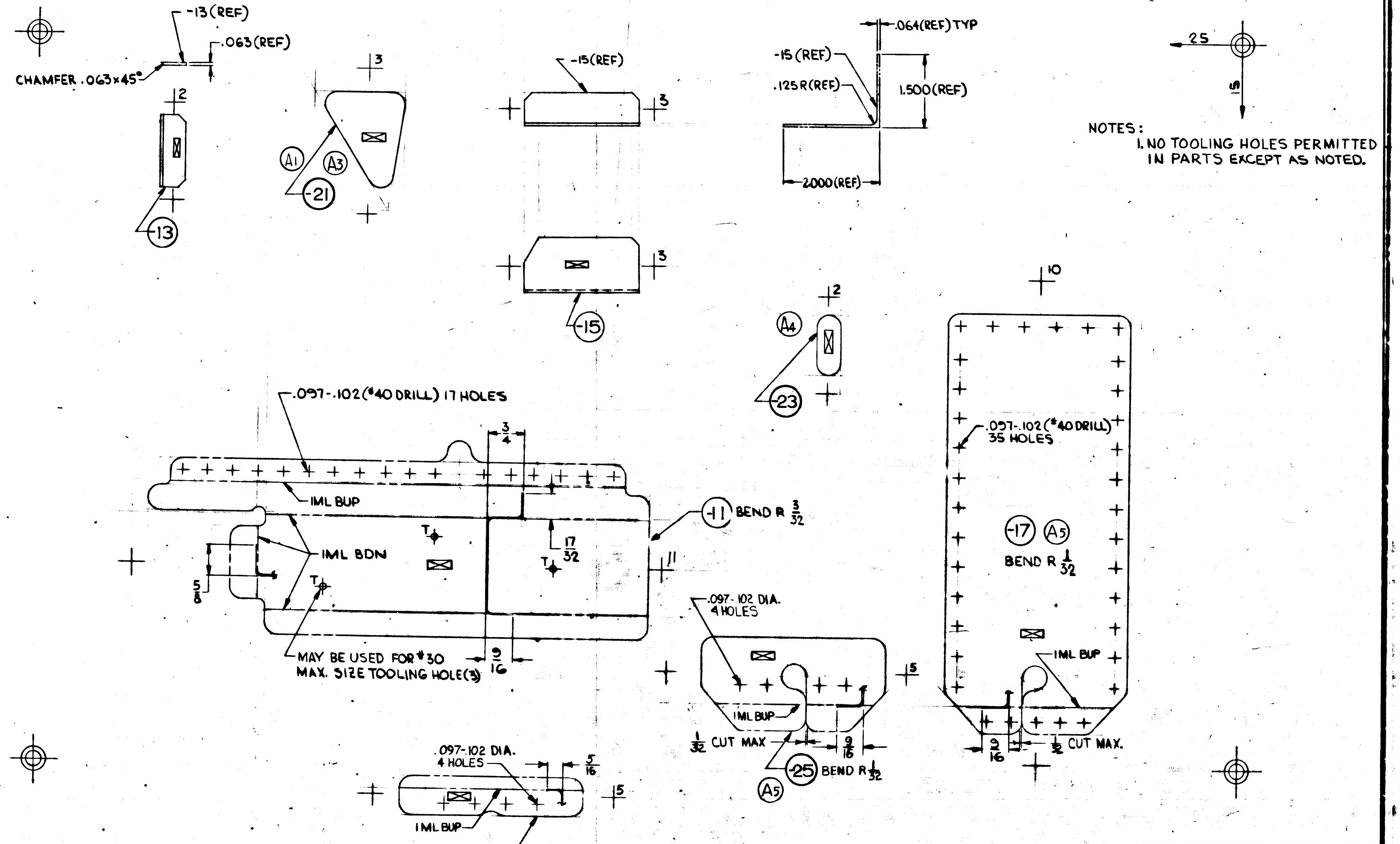
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



-13 (REF)
.063 (REF)
CHAMFER .063×45°
-13
A1
A3
-21
-15 (REF)
-15
.064 (REF) TYP
-15 (REF)
.125 R (REF)
1.500 (REF)
2.000 (REF)
25
15
A4
-23
10
.097-.102 (#40 DRILL) 17 HOLES
3/4
IML BUP
IML BDN
5/8
T
17/32
-11 BEND R 3/32
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLE(S)
9/16
.097-.102 (#40 DRILL) 35 HOLES
-17 A5
BEND R 1/32
IML BUP
1/32 CUT MAX.
9/16
.097-.102 DIA. 4 HOLES
IML BUP
1/32 CUT MAX
9/16
-25 BEND R 1/32
A5
.097-.102 DIA. 4 HOLES
5/16
IML BUP
-27 BEND R 3/32
A5

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18513	A
SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1 K2

NAS 9-1100

LDW280-18514 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23650	LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37	2
		LM-6 (36)	2
		LM-5 (35)	2
		LM-4 (34)	2
LM	LDW280-23650	LTA-3 (13)	2
PART NO. LDW280-18514-13		GAEC SCH NO. 51	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	1.10	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO A		
		PRIM NO.	K(001)	
LAST DASH NO. USED	-13	207	MP-1A 1-24-68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

D ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011, CCA 668

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	JOLICK 1-18-68	RELIABILITY	
LAYOUT BY	RICHER		
CHECKED BY	D. FASS		
GR. LEADER	PST 1-11-68		
VEH. DES. INT	JHS 1-11-68		
STRUCT.	WJH 1-15-68	PROJ ENGR	JAR 1-11-68
STRUCT.		REL GROUP	J.R.T. 1-15-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE
QUAD IV EQUIP. STOWAGE CABLE GUARD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18514	A (A)
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		D		✓		EOA1 LCD 2011 CCA 668	EOA1 INITIAL DWG RELEASE.	LTA-3(13), LM-4(34) THRU LM-15(45)	NOT	REQD	JOLIC 1-19-68		
	2	1.00, 2.00 & 3.00		D		✓		EOA2 LCD2011 CCA668 ①	REF EOA1: CREATE-13, REMOVED-11 OJ.			-11			

CHG APPROVED	LTR	GROUP LDR	VEH.DES.INT	STRUCT.	STRUCT.	WEIGHTS	REALIABILITY				
	A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18514	A Ⓐ
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW 280-18514-13	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.040X3X5	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18514
A

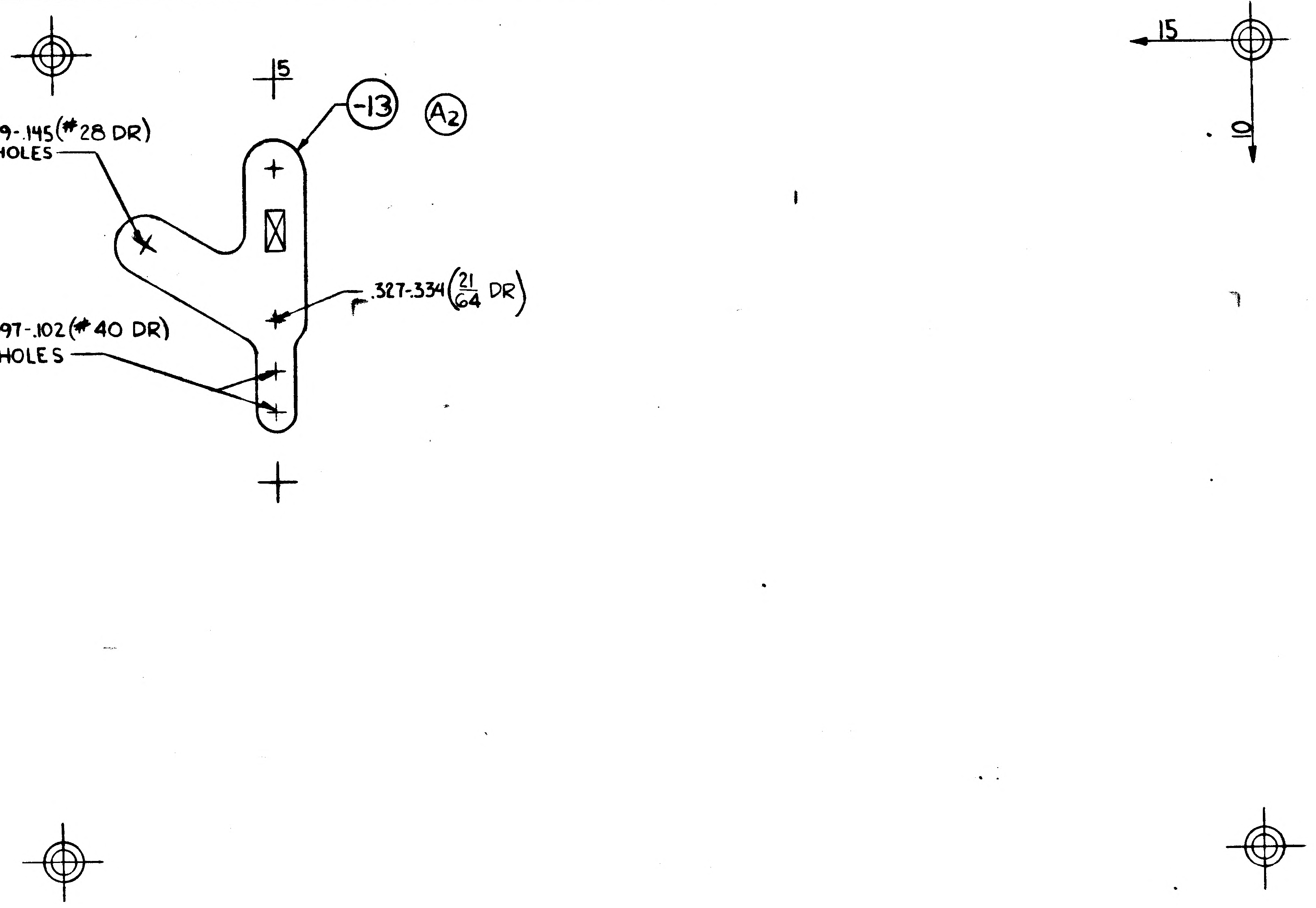
SCALE NONE
SHEET 2.00

⑨

ENG 77.2 7-65

01 NAS 9-1100

TRAM OK
1-18-68



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW 280-18514	A
SCALE FULL			SHEET 3.00	

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 965
CONTROL INFO NO. LDW280B3514

FOR ALL PART NO'S LISTED BELOW ADD TM-5 (65) EFFECTIVITY WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR LM4 (34)

	*PART NUMBERS	N/A	CHANGE NO.
✓	LDW280-18408 -11, -12 -13, -15	LDW280-23650	A2
✓	LDW280-18409-11	↓	A1
✓	LDW280M17818-11		A1
✓	LDW280M17819-11		A3
✓	LDW280M17833-11		A1
✓	LDW280-18514-13	LDW280-23650	B1
	LDW280M17980-11	LTM280-50604	A1
	LDW280-23650-9	LTM280-50604	A9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 3 (5)

REASON FOR EO: TO ADD LM4(34) REQ'M'TS ON VEHICLE

DESCRIPTION OF EO: ON -(*) ADDED REQ'M'TS FOR TM-5/R (65)

GAEC C EO RELEASE: VK 5/22/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	Jaf			GP	NH		Jaf	LM
DATE	5/17/68			5-17-68	5/17/68		5/17/68	5-21-68

PRIORITY: C
DRAWING TITLE: SEE DWG FOR TITLE
DRAWING NO.: LEO280
EO NO.: 965

5-24-68
ISSUED BY J. FIORELLO (X1681) SECTION VD I GROUP NO. 280 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280

EO NO. 1101

CONTROL INFO NO. LDW 280B 4947

FOR ALL PART NOS LISTED BELOW, ADD DVT(70) EFFECTIVITY, WITH QUANTITIES THE SAME AS FOR LM-5 (35)

PART NUMBERS *	DWG TITLE	N/A	CHANGE
LDW 280-18408-11,-12,-13,-15	BRACKET	LDW 280-23650	A3 ✓
↑ -18514-13	BRACKET	↑	B2 ✓
M17818-11	HUB		A2
M17819-11	CAM	↓	A4
↓ M17833-11	BELLCRANK	LDW280-23650	A2
LDW 280 M17980-11	GUIDE	LTP905-23003	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3128 PKG 3

REASON FOR EO: TO ADD MESA RELEASE SUB-SYSTEM TO TEST ARTICLE

DESCRIPTION OF EO: ON (*) ADDED REQUIREMENTS FOR DVT(70)

GAEC EO RELEASE (5) C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQD

APPROVED BY				PJF	NM			
DATE	8/9/68			8-9-68	8-9-68		8/14/68	8-14-68
	VDI	~~SUPPORT~~	~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	~~LIAISON ENGRG~~	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SEE DWG FOR FULL TITLE

DRAWING NO.: LEO 280

EO NO.: 1101

8/10/68
ISSUED BY A. RICHER X87222/ P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. /350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506 ✓	A3	
-18507 ✓	B1	
-18512 ✓	B2	
-18513 ✓	A6	
-18514 ✓	B3	
-18515	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/9/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/2/69		4/9/69	4/10/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /350

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280		EO NO. 1557
CONTROL INFO NO. LDW 280B 8119		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
515		B3
517		A3
523		A6
524		A4
525		B4
LDW 280-18530	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO	DESCRIPTION OF EO	Ⓔ GAEC EO RELEASE (5)
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (.23.) REQMTS	SWB 8-13-69 JK 8/6/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/1/69	8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~ Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280 | EO NO. 1788
CONTROL INFO NO. LDW280B7924

FOR DASH NO.'S* WITH THE NOTED N/A ON THE FOLLOWING DWGS., REMOVE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

DWG. NO.	DASH NO.*	N/A	TITLE	CHG.
✓ LDW280-18409	-13	LDW280-23650	SEE DWG.	A6
✓ ↑ -18514	-13	↑	↑	B5
-18631	-13			A4
M18040	-11	↓		A4
↓ M17819	-11	LDW280-23650	↓	A7
LDW280-23650	-9-5	LDW280-54509	SEE DWG.	D8

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG. 74 P. 1 (5)

REASON FOR EO: REDESIGN OF RELEASE MECH. DUE TO INCREASED LOADS ON LMMP

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

GAEC EO RELEASE: SALB 12-11-9; JK 12/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44)	
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/5/69			12/8/69	12/10/69		12/11/69	12/13/69

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LE0280
EO NO.: 1788

12/19/69
ISSUED BY L. KRAVITZ / HANSMANN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18515 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	DESIGN VERIFICATION TEST (70)	1 EA
		LTA-3(3)	1 EA
		LM-5(45)	1 EA
		LM-4(44)	1 EA
		LM-3(43)	1 EA
		LM-2(42)	EA
		LM-1(41)	EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54586	LN-4(34)	1 EA

PART NO.	GAEC SCH NO.
LDW280-18515-11 & -13	51

WORK PKG FUNCTION NO. 110 (51)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH								
SHEET	1.00		1.0		2.00		3.00	
REV	A		A		A		A	
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED		GRUMMAN REL INFO A		
LAST DASH NO. USED	-13	PRIM NO. 25		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

B	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1433, CCA586	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE I

DRAWN BY	F. LEGIDO - 0-68	RELIABILITY	
LAYOUT BY	A. MARZELLA		
CHECKED BY	W. GOURLAY 1-13-68		
GR LEADER	PST 1-8-68		
	JHS 1-8-68		
STRUCT	WJH 1-9-68	PROJ ENGR	JAK. 1-8-68
STRUCT		REL GROUP	BOTTI 1-8-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE. L. I.. NEW YORK

PLATE
DESCENT STAGE
SCIENTIFIC EQUIPMENT-RIGHT HAND CLOSURE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18515	A
SCALE	NONE	SHEET 1.00 OF 1	

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		B		✓		EOA1 LCD1433 CCA 586 Ⓔ	EOA1 INITIAL DWG RELEASE. PARTS MADE PER EO.	LM-4 THRU LM5 LTA-3 DESIGN VERIFICATION TEST	NOT	REQ'D	LEGIDO 1-10-68	X	X

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B CODE IDENT NO. 26512 LDW280-18515 A

SCALE NONE SHEET 1.10 Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18515-13	E		SPACER	AL ALY SH	QQ-A-250/12	7075-T6	.024 X 3 X 3	NONE	88	
	LDW280-18515-11	E		PLATE	AL ALY SH	QQ-A-250/12	7075-T6	.050 X 5 X 5	NONE	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18515

A

Ⓐ

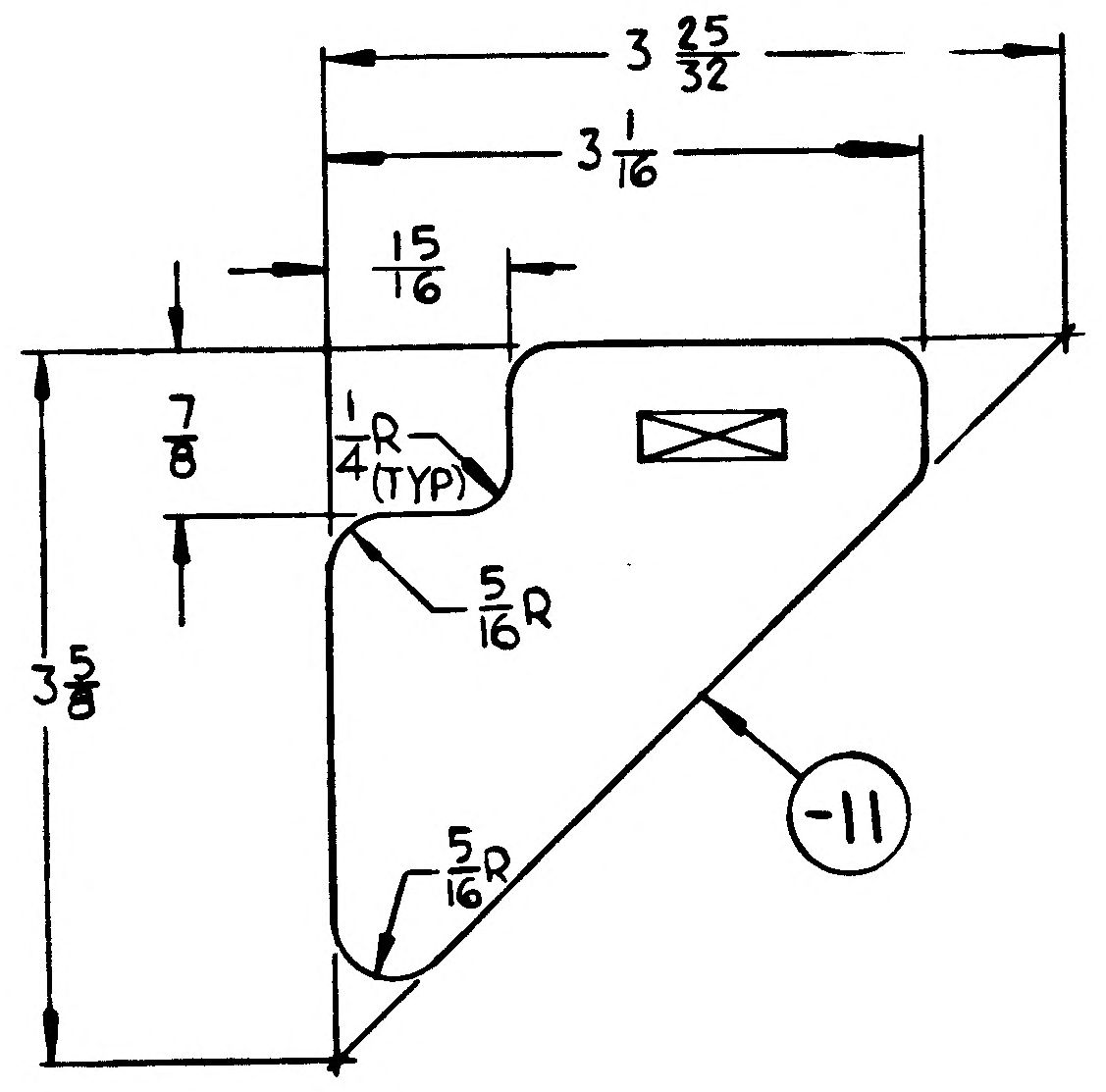
SCALE NONE

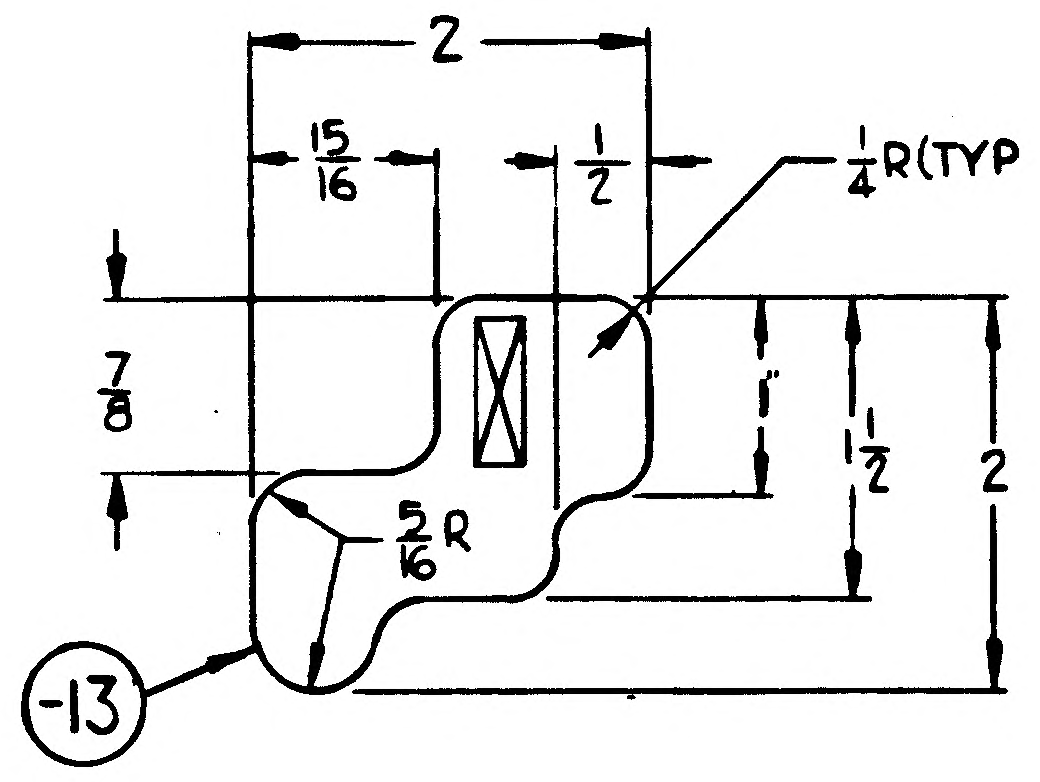
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100





MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE C	CODE IDENT NO. 26512	LDW280-18515	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

LDW280-18515 A

LDW280-18515 A

01

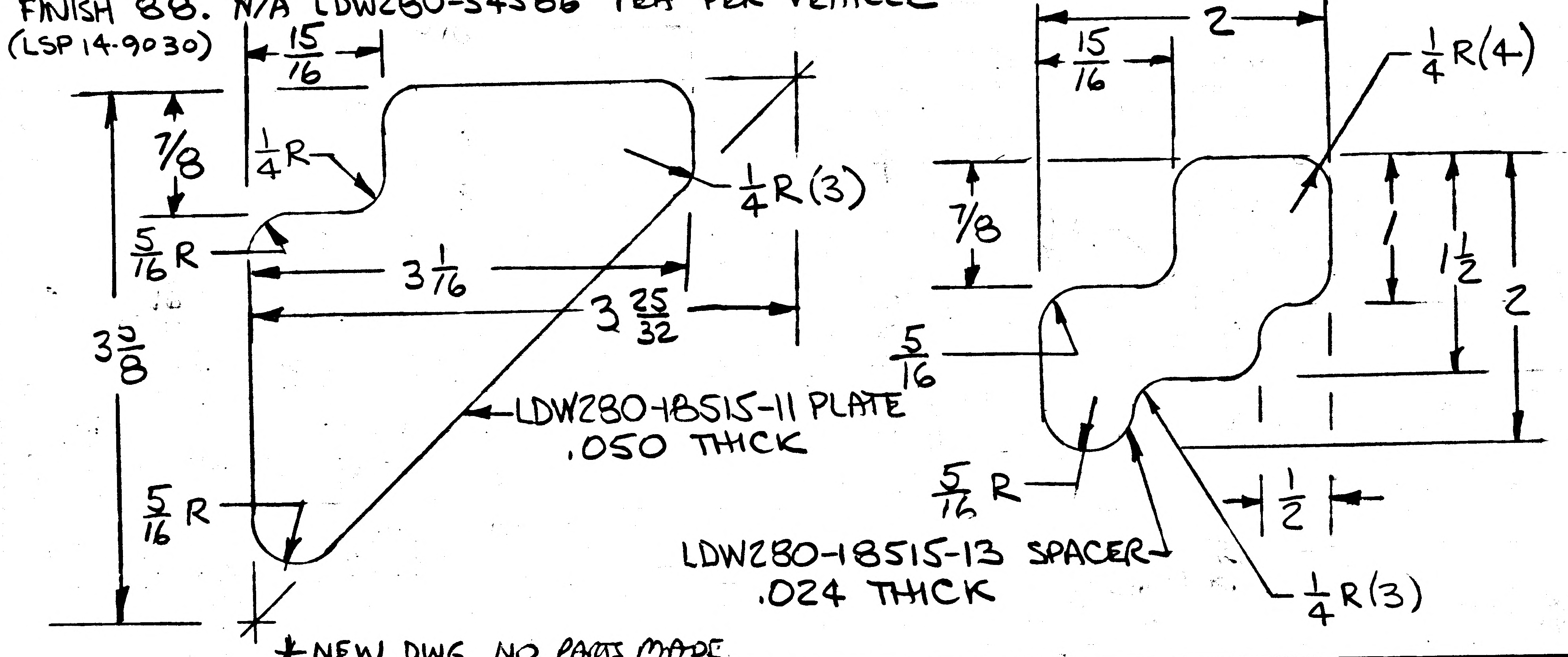
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18515 | EO NO. A1
CONTROL INFO NO. LDW280B1151

CREATE -11 & -13 AS S.N. MAT'L 7075-T6 QQ-A-250/12 SHT THICKNESS AS NOTED. I&T=E FINISH 88. N/A LDW280-54586 1EA PER VEHICLE
(LSP 14-9030)



15/16
7/8
1/4 R
1/4 R (3)
5/16 R
3 1/16
3 25/32
3 3/8
LDW280-18515-11 PLATE
.050 THICK
5/16 R
2
15/16
1/4 R (4)
7/8
1
1 1/2
2
5/16
5/16 R
1/2
LDW280-18515-13 SPACER
.024 THICK
1/4 R (3)

*NEW DWG NO PARTS MADE

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 1433 | CCA 586 | PKG · 24 (5)

REASON FOR EO: LOWER OUTB'D SPLICE REDESIGNED

DESCRIPTION OF EO: EO A1 INITIAL DWG RELEASE PARTS MADE PER EO

GAEC EO RELEASE: JK 1/8/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4 (34)	THRU LM-15 (45)	
LM	LTA-3 (13)		
LM	DESIGN VERIFICATION TEST (70)		

1-9

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
*		NOT REQ'D		DATE	1/8/68			1-8-68	1/9/68	1/8/68	1-8-68
REVISE DWG	RECORD EO	REWORK	SCRAP	B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG / PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: PLATE-DESCENT STAGE-SCIENT. EQUIP RH END CLOSURE
DRAWING NO.: LDW280-18515
EO NO.: A1

ISSUED BY A.F. MARZELLA EXT 9505
SECTION VEH DES. & INTEG.
GROUP NO. 335
PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 951
CONTROL INFO NO. LDW280B3379	

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS NEXT ASSY LDW 280-54586 FOR THE QUANTITIES NOTED.

DWG NO. (*)	TITLE	REQ'D/MOD.	CHANGE NO.
LDW280-17709-23	SEE DRAWING	1	B8
LDW280-17710-11 -13 -15 -17 -19		1 1 2 4 2	A9
LDW280-17739-15		4	C6
LDW280-17887-15 -17		1 1	B5
LDW280-18368-13-1		1	A5
LDW280-18369-11 -13 -15 -16 -21 -23		1 1 1 1 1 1	A3
LDW280-18458-15		1	A5
LDW280-18515-11 -13		1 1	B1
LDW280-18558-11 -13 -15 -17		1 1 1 1	A2
LDW280M17969-12		1	A2
LDW280M71500-11		1	A1
LDW280M71501-11		3	A1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3075 CCA586 PKG 2J (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS.

GAEC EO RELEASE: JK 5/18/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		TM-5/R(65)	

DRAWING CHANGE REQ'D: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	5/13/68			5-13-68	5/1?/68		5/13/68	5-17-68
	V.D.I.							

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 951

5-17-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18500 ✓	A2	SEE DWG
-18505 ✓	A4	
-18506 ✓	A3	
-18507 ✓	B1	
-18512 ✓	B2	
-18513 ✓	A4	
-18514 ✓	B3	
-18515 ✓	B2	
LDW280 -18517	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: K 4/11/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PJF	N/H			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/10/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1350

032869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

Q1 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1557
CONTROL INFO NO. LDW280B 8119		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓LDW280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
✓ 515		B3
517		A3
523		A6
524		A4
525		B4
LDW280-18530	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (5)
SwB 8-13-69
JK 8/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT REQ'D	

APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/ /69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1660
CONTROL INFO NO. LDW280B 8446

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS FOR THE NOTED NEXT ASSY. QUANTITY SAME AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHGNO.
LDW 280-17709 ✓	SEE DRAWING	LDW280-54586	C3
-17887 ✓		-54586	C3
-18515 ✓		-54586	B4
-18368		-54586	B3
-18369		-54586	A7
-18458		-54679	B3
-18458		-54586	
-18558		-54586	A7
LDW280 M18022		-54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,7, (5)

REASON FOR EO: ADDITION OF S.E.Q. BAY FOR TEST ARTICLE

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SUB 8-22-69 K 9/8/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NO SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PST							
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/1?/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1660

8-27-69
ISSUED BY F. OLIVERI EXT 86048 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18516

LM	LDW280-23637	LM-4(34)	2 EA.
LM	LDW280-23637	LM-3(33)	2 EA.
PART NO. LDW280-18516-11,-13,-19 & -31		GAEC SCH. NO.	REQD PER MODULE OR END ITEM

LM	LDW280-23565	LM-4(34)	4 EA.
LM	LDW280-23565	LM-3(33)	4 EA.
PART NO. LDW280-18516-33,-35,-37,45, -47 & -49		GAEC SCH. NO.	REQD. PER MODULE OR END ITEM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23637	LM-4(34)	4 EA.
LM	LDW280-23637	LM-3(33)	4 EA.
PART NO. LDW280-18516-15,-17,-21,-23,-27,-29,-41 & -43		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23563	LM-3(33)	2 EA.
PART NO. LDW280-18516-25,-39,-51,-53,-55,-57,-59,-61,-63,-65,-67 & -69		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11177	DESIGN VERIFICATION TEST (70)	4 EA.
PART NO. LDW280-18516-51,-53,-59 & -61		GAEC SCH NO. 50	

WORK PACKAGE FUNCTION 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00			3.00		
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	~	GRUMMAN REL INFO	
LAST DASH NO. USED	-69	PRIM NO. 207	JK(001) MP-16 1/23/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
OK LCD2459	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E. RANSOM 1-15-68	RELIABILITY	
LAYOUT BY	E. RANSOM		
CHECKED BY	J. Kartzman 1-22-68		
GRP. LEADER	Thorjussen 1-18-68		
VEH. DES. INT.	J. Pusateri 1/19		
STRUCTURES	WB 1/19/68	PROJ ENGR	J. Pusateri 1/19/68
STRUCTURES	FCB 1/19/68	REL GROUP	J. Tagliavore 1-25-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE - QUAD II & III
TANK STRUT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18516
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18516-69	E	STRAP	CRES. SH	MIL-S-5059	301 1/4 HARD	.040x1 3/4x3	NONE	NONE	
		-67						.040x1 3/8x3			
		65						.040x1 5/8x2 7/8			
		-63						.040x1 3/4x2 7/8			
		-61						.032x1 5/8x2 3/4			
		-59						.032x1 3/8x2 3/4			
		-57						.040x1 5/8x2 3/4			
		-55						.040x1 5/8x2 3/4			
		-53						.032x1 5/8x2 3/4			
		-51						.032x1 3/8x2 3/4			
		-49						.015x1 1/8x2			
		-47						.015x3/4x2			
		-45						.015x3/4x2			
		-43						.015x1x2			
		-41						.015x1x2			
		-39						.032x1 3/4x4 7/8			
		-37						.015x1 1/8x2			
		-35						.015x5/8x2			
		-33						.015x5/8x2			
		-31						.015x7/8x2			
		-29						.015x7/8x1 7/8			
		-27						.015x7/8x1 7/8			
		-25						.032x1 3/4x4 5/8			
		-23						.015x7/8x1 7/8			
		-21						.015x5/8x1 7/8			
		-19						.015x7/8x1 7/8			
		-17						.015x1/8x1 7/8			
		-15						.015x5/8x1 7/8			
		-13						.025x1/2x1 5/8			
		LDW280-18516-11	E	STRAP	CRES. SH	MIL-S-5059	301 1/4 HARD	.025x1/2x1 1/2	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18516

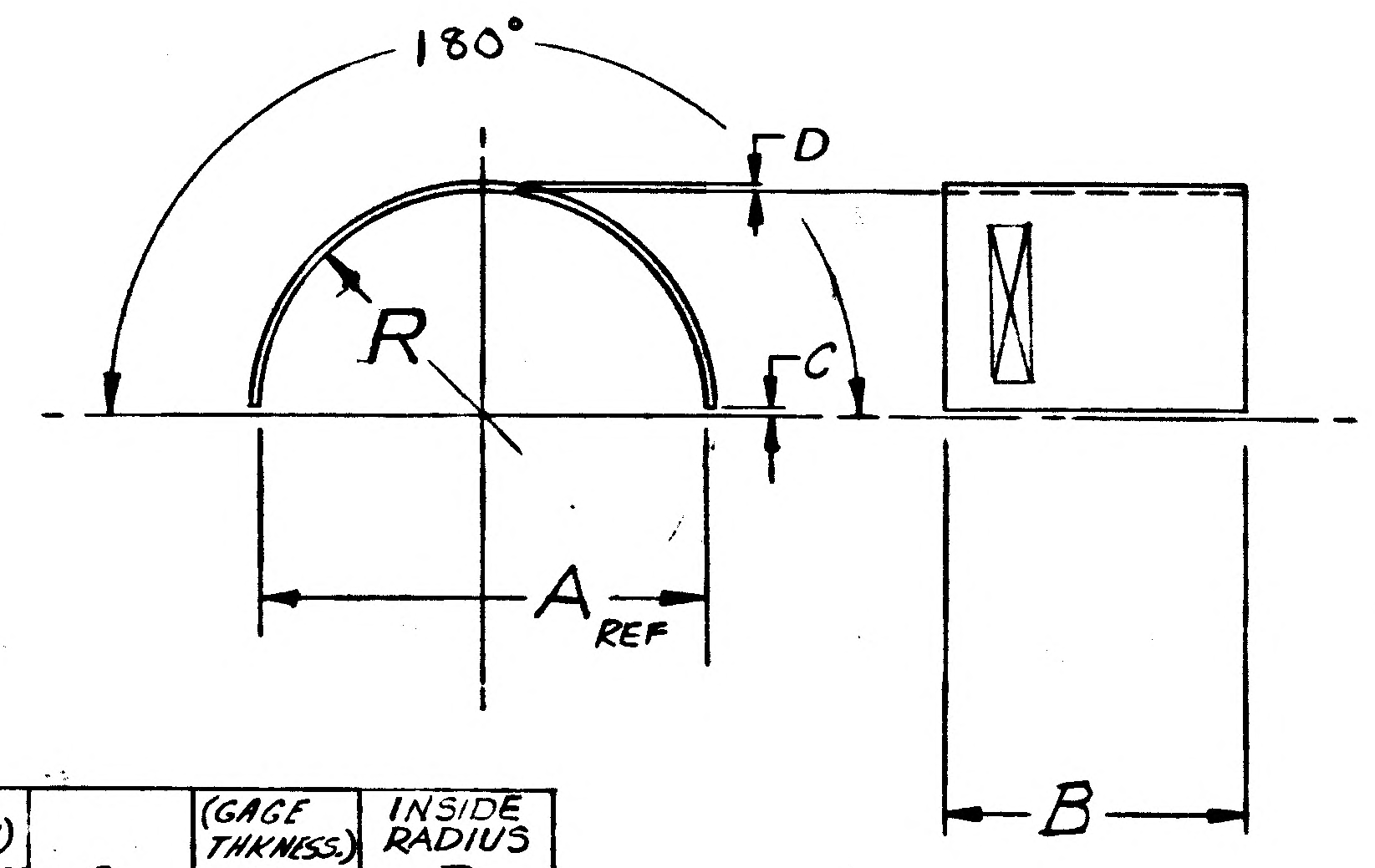
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



PART NUMBER	(INSIDE DIA.) A	(WIDTH) B ±.032	C	(GAGE THKNESS) D	INSIDE RADIUS R
LDW280-18516-11	.848	.212	.031	.025	.424
-13	.903	.212		.025	.451
-15	1.011	.375		.015	.505
-17	1.011	.687		.015	.505
-19	1.041	.687		.015	.520
-21	1.046	.375		.015	.523
-23	1.046	.687		.015	.523
-25	2.811	1.500		.032	1.405
-27	1.051	.687		.015	.525
-29	1.061	.687		.015	.530
-31	1.076	.687		.015	.538
-33	1.077	.406		.015	.538
-35	1.077	.437		.015	.538
-37	1.077	.875		.015	.538
-39	2.880	1.500		.032	1.440
-41	1.086	.687		.015	.543
-43	1.096	.687		.015	.548
-45	1.112	.406		.015	.556
-47	1.112	.437		.015	.556
-49	1.112	.875		.015	556
-51	1.530	1.062		.032	765
-53	1.530	1.375		.032	.765
-55	1.546	1.312		.040	.773
-57	1.592	1.125		.040	.796
-59	1.599	1.062		.032	.799
-61	1.599	1.375		.032	.799
-63	1.624	1.500		.040	.812
-65	1.631	1.312		.040	.815
-67	1.677	1.125		.040	.838
LDW280-18516-69	1.709	1.500	.031	.040	.854

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18516	
SCALE NONE		SHEET 1.00	

ENG 73-6 REV 9-67

01 [illegible]

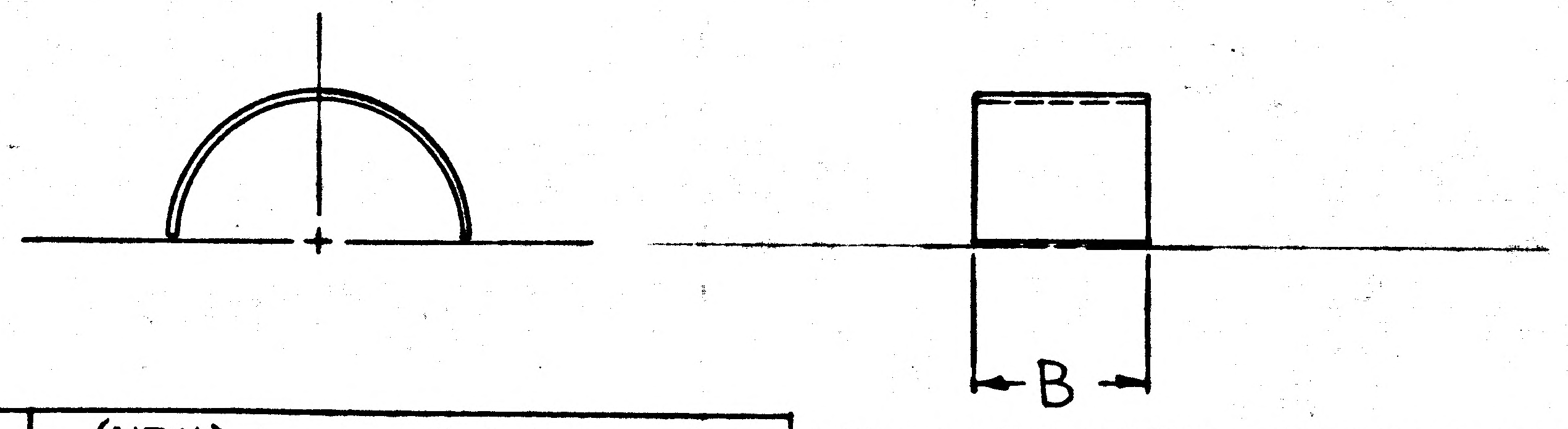
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18516 | EO NO. A1
CONTROL INFO NO. LM5-19111

REWORK -57 & -67 (2EA. REQD) LM-3(33)
FOR -57 & -67 (2EA REQD) ADD N/A LSK280-11190 FOR (LM-3) TEST



PART NO.	(NEW) (WIDTH) B ±.032	
-57	.750	WAS 1.125
-67	.750	WAS 1.125

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ✓ | CL I ENGRG CHG ✓ LCP 2459 (5)

REASON FOR EO: TO CLEAR EXISTING STRUCTURE

DESCRIPTION OF EO: ON -57 & -67 .750 WAS 1.125. ADDED N/A LSK280-11190 TO -57 & -67 (2EA) FOR LM-3 TEST.

GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		TEST (75)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: -57 -67 ✓ REWORK | SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY						CH		
DATE	2/24				2/14/68	2-15-68		2/15/68
	VDI							

PRIORITY: C
DRAWING TITLE: STRAP D/S QUAD II & III TANK STRUT
DRAWING NO.: LDW280-18516
EO NO.: A1

ISSUED BY LIAISON V.A. CHRISTINA SECTION VDI X1153 GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

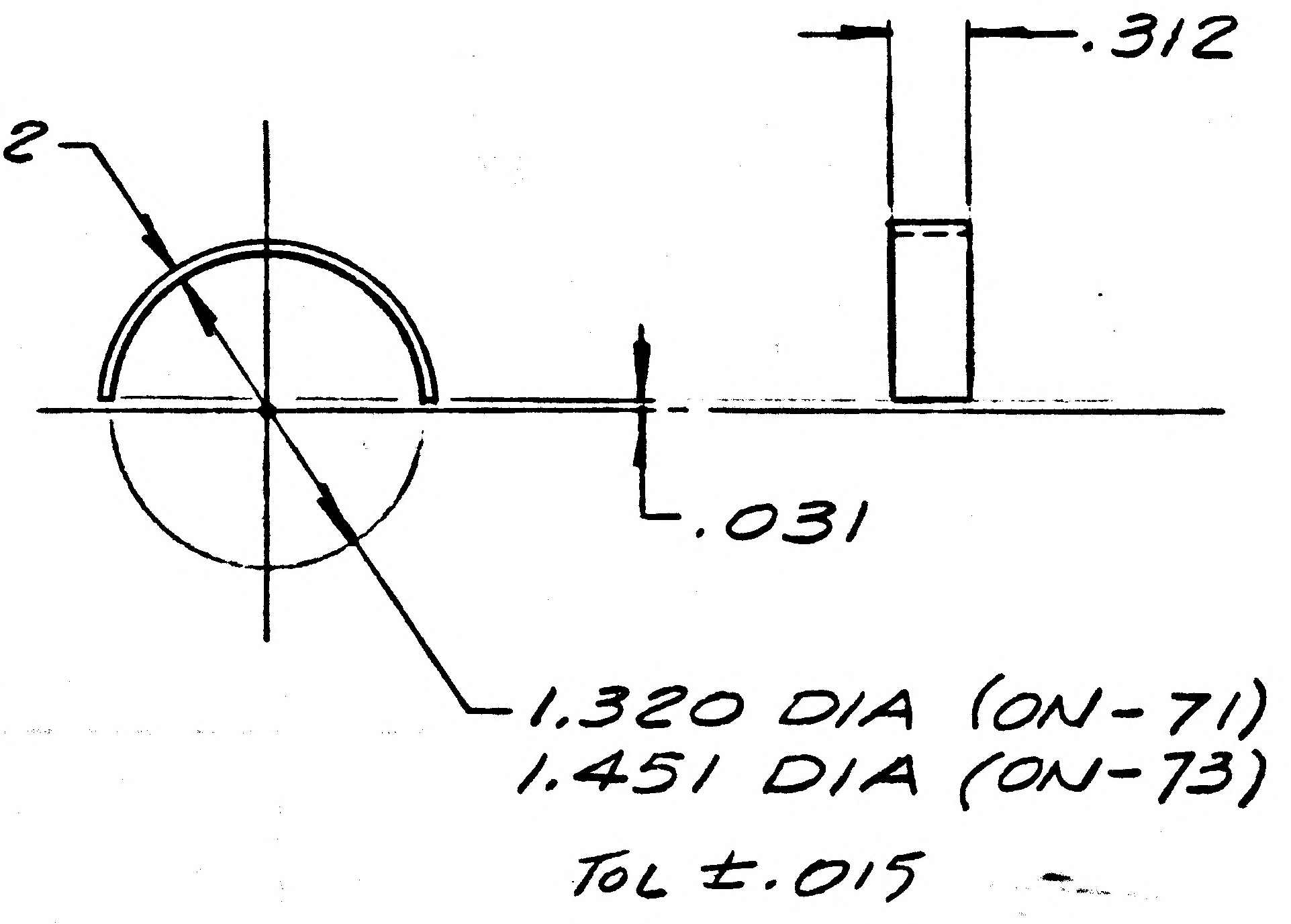
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18516
EO NO. A2
CONTROL INFO NO. LM-5-19195

IN FLD, B/M, & MOD/BLK
REMOVE -57 & -67

ADD -71 & -73 SAME AS
-57 & -67 RESP EXCEPT
AS NOTED:
2 EA REQ'D/MOD
LM3 (33) & LSK280-11190
1 & T = E
N/A LDW280-23563
LSK 280-11190



RELEASED BY LIAISON

REF EO A1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 2459

REASON FOR EO: TO CLEAR EXISTING STRUCT.

DESCRIPTION OF EO: IN FLD, B/M, & MOD/BLK ADDED -71 & -73; REMOVE -57 & -67

GAEC EO RELEASE: C (5)

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM3 (33)	
		LSK280-11190	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | -57 -67 SCRAP

APPROVED BY							
DATE	2/29			—	2/24/68	2-24-68	2/29/68
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: STRAP, DESCENT STAGE QUAD II & III TANK STRUT
DRAWING NO.: LDW280-18516
EO NO.: A2

ISSUED BY LIAISON M.D. REYES X86755 SECTION VD1 GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18517

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	~	QUAL TEST([illegible])	3
	LDW280-23595	LM-15(45)	3
		LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
		LM-10(40)	3
		LM-9(39)	3
		LM-8(38)	3
		LM-7(37)	3
LM		LM-6(36)	3
LFM 107		LM-5(35)	3
LFM 107		LM-4(34)	3
LFM 107	LDW280-23595	LM-3(33)	3

PART NO. LDW280-18517-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	~	QUAL TEST([illegible])	1 EA
	LDW280-23595	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM		LM-6(36)	1 EA
LFM 107		LM-5(35)	1 EA
LFM 107		LM-4(34)	1 EA
LFM 107	LDW280-23595	LM-3(33)	1 EA

PART NO. LDW280-18517-11,13,-17 & -19

WORK PACKAGE FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-19

GRUMMAN REL INFO

PRIM NO.			
207		3/29/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

U	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2567 PKG #2	

O.K.

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 3-14-68	RELIABILITY	
LAYOUT BY	J. ROGERS 3/12 3-20-68		
CHECKED BY	3-19-68		
GR LEADER	3/21/68		
MECH DES INT	3/21/68		
STRUCT		PROJ ENGR	Pusateri 3/22
STRUCT	3/22	REL GROUP	Tagliaro 3/22
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - O_2 & GLYCOL DISCONNECTS
INTERSTAGE UMBILICAL SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18517

SCALE NONE | SHEET 1.00 OF 3

C.D.R. 3-29-68

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	[illegible]	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COMM SPEC	STOCK SIZE	PROCESS SYM	FINISH NO	ZONE
		LDW280-18517-9	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040 X 2 X 3	T6	BB	
		LDW280-18517-7	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040 X 2 X 3	T6	BB	
		LDW280-18517-15	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040 X 2 X 3	T6	BB	
		LDW280-18517-3	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040 X 3 X 3	T6	BB	
		LDW280-18517-11	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075	.040 X 5 X 11	T6	BB	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088						
BB	ANODIZE	LSP 4-9090						

I & TE IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH:
NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L. I. NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18517

SCALE NONE

SHEET [illegible]

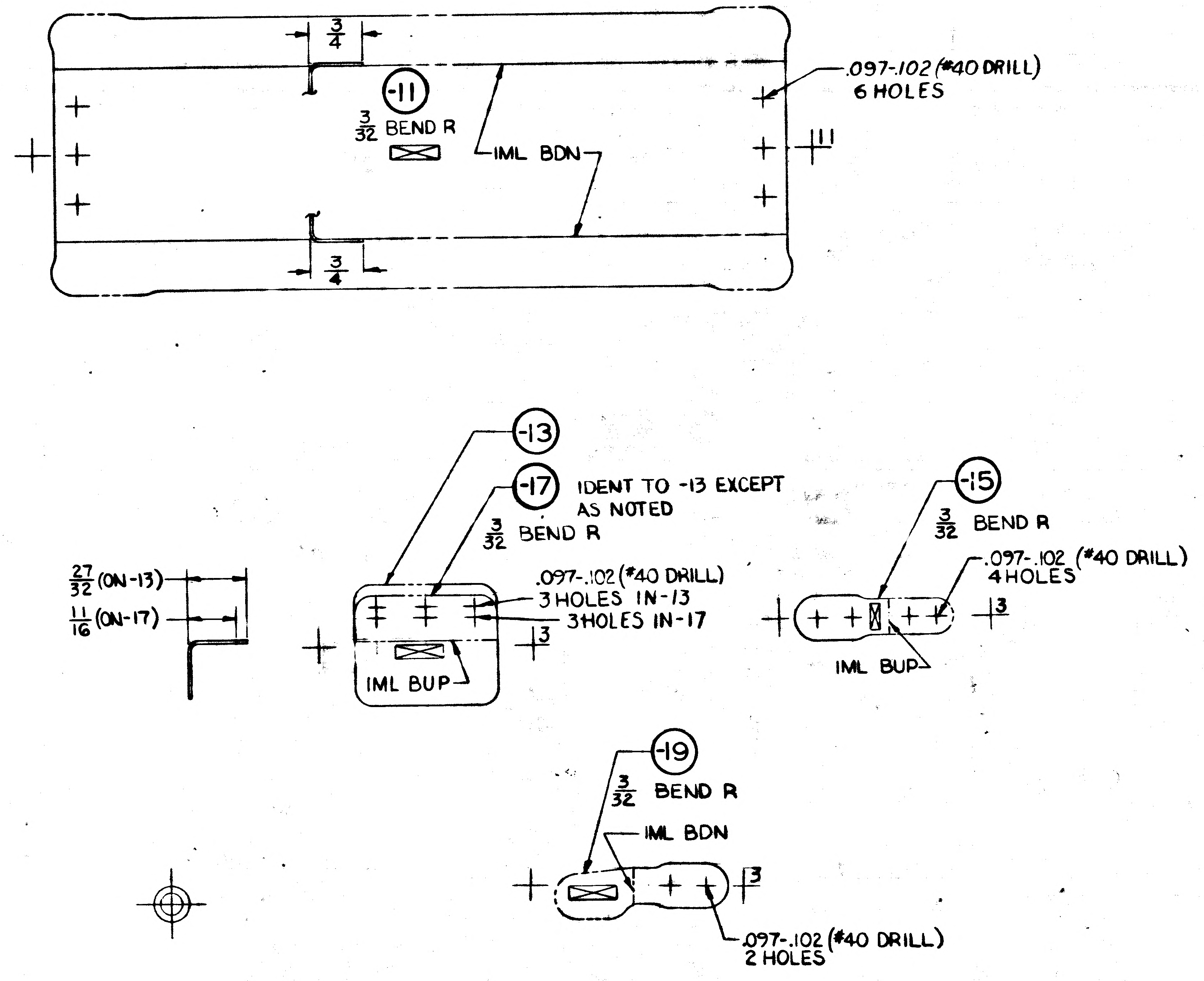
9

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~[illegible] NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



3/4
-11
3/32 BEND R
IML BDN
.097-.102 (#40 DRILL) 6 HOLES
11
3/4
-13
-17
IDENT TO -13 EXCEPT AS NOTED
3/32 BEND R
27/32 (ON-13)
11/16 (ON-17)
.097-.102 (#40 DRILL) 3 HOLES IN-13 3 HOLES IN-17
IML BUP
3
-15
3/32 BEND R
.097-.102 (#40 DRILL) 4 HOLES
3
IML BUP
-19
3/32 BEND R
IML BDN
3
.097-.102 (#40 DRILL) 2 HOLES

25
15

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18517

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

K2

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1241
CONTROL INFO NO. LDW280B6505

TO THE FOLLOWING DRAWINGS, FOR DASH (✱) AND IT'S NEXT ASSEMBLY (✱✱) AS NOTED, REMOVE LM-3(33) EFF PER LFM107 & ADD LM-2(32) EFF PER LFM107, QUANTITIES TO REMAIN THE SAME AS WAS FOR LM-3(33).

DRAWING NO'S.	DASH NO'S (✱)	NEXT ASSEMBLY (✱✱)	EFFECTIVITY WAS (✱✱✱)	TITLE	E.O. NO.
LDW280M17916 ✓	-11	LDW280-23595	LM-3(33) THRU LM-5(35) PER LFM107, & LM-6(36) THRU LM-15(45)	SEE DWG	A3 ✓
LDW280M17917 ✓	-11	LDW330-54013			A2
LDW280M17966 ✓	-11	LDW280-23595			A2 ✓
LDW280-18517 ✓	-11, -13, -15 -17 & -19	LDW280-23595			A1 ✓

LFM

ECP #A072, CCA #1495 / ECP #M118, CCA #1610

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2567 PKG #50 PG #1 / LCD 3614 PKG #50 PG #1 (5)

REASON FOR EO: ADDITIONAL REQ'MENT FOR LM-2 DROP TEST PROGRAM.

DESCRIPTION OF EO: FOR DASH (✱), NEXT ASSMBLY (✱✱) REMOVED LM-3(33) PER LFM 107 EFF. [WAS ✱✱✱], ADDED LM-2(32) EFF.

GAEC EO RELEASE: JK 12/13/68

MODEL	EFFECTIVITY: EI [redacted]	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 107	LM-2(32)	
LM	LFM 107	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

APPROVED BY									
DATE	12/10/68			12/10/68	12/11/68		12/11/68	12-13-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO280
EO NO.: 1241

C.D.R. 12-23-68
ISSUED BY J.J. ROGERS / P. THORJUSEN X87222 SECTION VEH DES & INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. /350
CONTROL INFO NO. LDW280B 7438

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.		CHANGE NO.	DWG NOMENCLATURE
LDW280-18500	✓	A2	SEE DWG
-18505	✓	A4	
-18506	✓	A3	
-18507	✓	B1	
-18512	✓	B2	
-18513	✓	A4	
-18514	✓	B3	
-18515	✓	B2	
LDW280 -18517	✓	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 2 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/11/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: /350

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 | EO NO. 1557
CONTROL INFO NO. LDW 280 B 8119

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]8)
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
✓ 515		B3
✓ 517		A3
523		A6
524		A4
525		B4
LDW 280-18530	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE (5): SWB 8-13-69; JK 8/6/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/ /69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1557

8-29-69
ISSUED BY G. HANSMANN X87222 (mL) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18518

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 171	LDW280-52791	LM-3(33)	2 EA
PART NO. LDW280-18518-9,-23,24 & -25		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 171	LDW280-52791	LM-3(33)	1 EA
PART NO. LDW280-18518-1,-2-3,-5,-7,-8,11 & -27		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -27

GRUMMAN REL INFO

PRIM NO. 207 JK(001) MP-16 6/15/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3169 OK.

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY BIANCHINO 6/8/68

LAYOUT BY E.MORRIS

CHECKED BY J Kartzman 6-12-68

GR LEADER Thoyusen 6-14

VEH DES INT Get 6/14

STRUCTURES NM

STRUCTURES AA

WEIGHTS

PROJ ENGR J. Cusatis 6/15/68

REL GROUP L. Marsh 6/15/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL ASSEMBLY
DESCENT STAGE - BEAM PANELS ELECTRICAL LINES SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18518

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6/14/68

01

NAS 9-1100

-9	-8	-7	-5	-3	-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
5	2	2	4	6	4	4		NAS697C08L	E	PLATE NUT	STD PART						
								MS20426AD3	E	RIVET	STD PART						
								LDW280-18518-27	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040X2X2	NONE	38	
								LDW280-18518-25	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040x2x2	NONE	88	
								-24		ANGLE				.050x3x4			
								-23		BRACKET				.050x3x4			
1								-21		ANGLE				.040x2x10			
	1							-20						.040x3x7			
		1						-19						.040x3x7			
			1					-17						.040x2x11			
				1				-15		ANGLE				.040x3x12			
					1			-14		CHANNEL				.040x3x12			
						1		-13		CHANNEL				.040x3x12			
								-11		PLATE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050x11x20		88	
								-9		ANGLE ASSY						NONE	
								-8									
								-7									
								-5									
								-3		ANGLE ASSY							
								-2		CHANNEL ASSY							
								LDW280-18518-1	E	CHANNEL ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18518

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

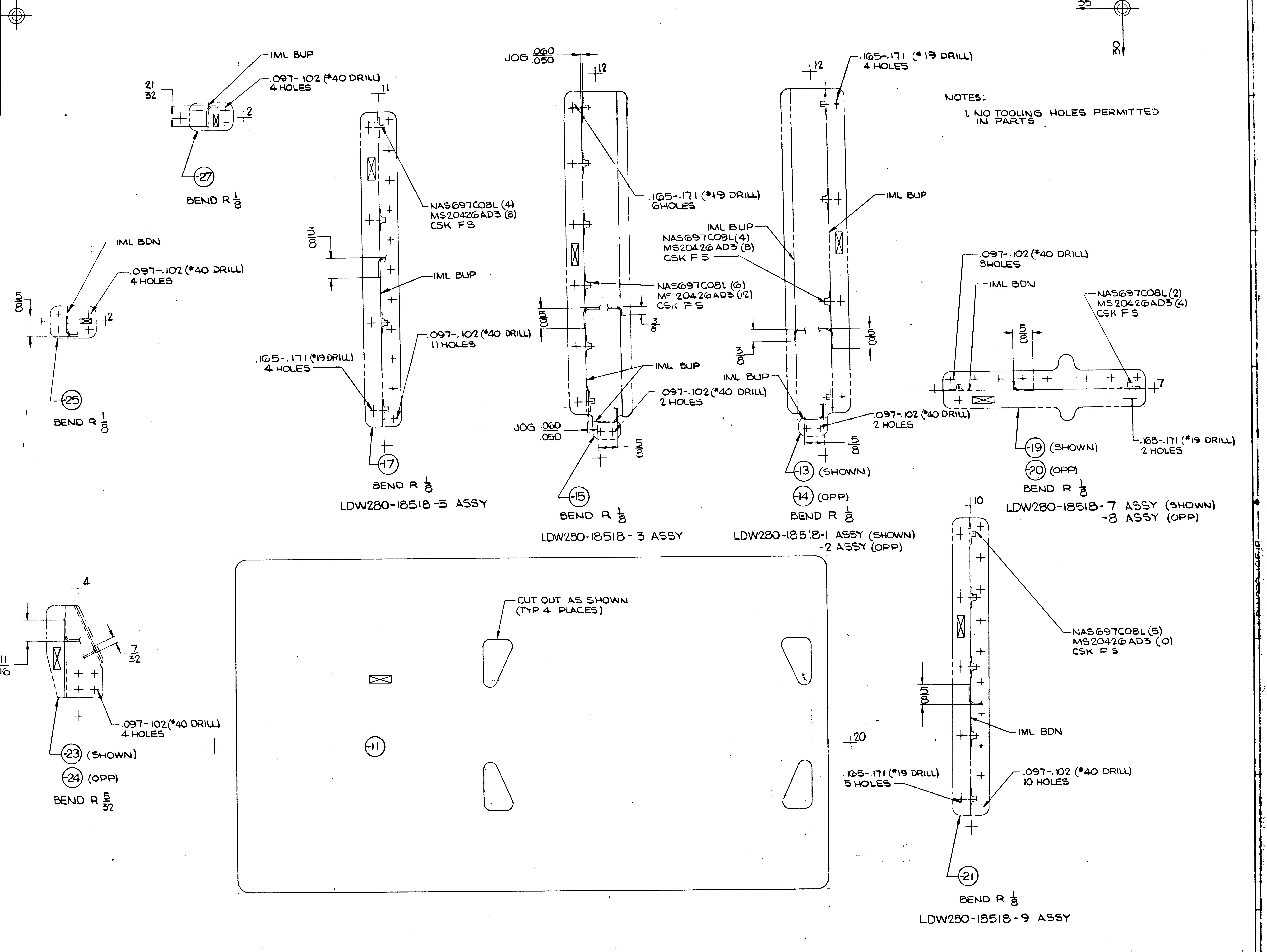
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH LSP 14-15302	
TOLERANCE ON LOFTED DELINEATIONS ±1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS



35
30
IML BUP
.097-.102 (#40 DRILL) 4 HOLES
21/32
2
27
BEND R 1/8
11
NAS697C08L (4)
MS20426AD3 (8)
CSK F S
.015
IML BUP
.097-.102 (#40 DRILL) 11 HOLES
.165-.171 (#19 DRILL) 4 HOLES
17
BEND R 1/8
LDW280-18518-5 ASSY
JOG .060/.050
12
.165-.171 (#19 DRILL) 6 HOLES
NAS697C08L (6)
MS20426AD3 (12)
CSK F S
3/8
IML BUP
.097-.102 (#40 DRILL) 2 HOLES
JOG .060/.050
15
BEND R 1/8
LDW280-18518-3 ASSY
12
.165-.171 (#19 DRILL) 4 HOLES
IML BUP
IML BUP
NAS697C08L (4)
MS20426AD3 (8)
CSK F S
3/8
IML BUP
.097-.102 (#40 DRILL) 2 HOLES
5/8
13 (SHOWN)
14 (OPP)
BEND R 1/8
LDW280-18518-1 ASSY (SHOWN)
-2 ASSY (OPP)
IML BDN
.097-.102 (#40 DRILL) 4 HOLES
2
25
BEND R 1/8
.097-.102 (#40 DRILL) 8 HOLES
IML BDN
NAS697C08L (2)
MS20426AD3 (4)
CSK F S
7
.165-.171 (#19 DRILL) 2 HOLES
19 (SHOWN)
20 (OPP)
BEND R 1/8
LDW280-18518-7 ASSY (SHOWN)
-8 ASSY (OPP)
4
11/16
7/32
.097-.102 (#40 DRILL) 4 HOLES
23 (SHOWN)
24 (OPP)
BEND R 5/32
CUT OUT AS SHOWN (TYP 4 PLACES)
11
20
10
NAS697C08L (5)
MS20426AD3 (10)
CSK F S
IML BDN
.165-.171 (#19 DRILL) 5 HOLES
.097-.102 (#40 DRILL) 10 HOLES
21
BEND R 1/8
LDW280-18518-9 ASSY

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18518
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 1 K2

LDW280-18523

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	2 EA
		LM-15 (45)	2 EA
		LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
		LM-11 (41)	2 EA
		LM-10 (40)	2 EA
		LM-9 (39)	2 EA
		LM-8 (38)	2 EA
		LM-7 (37)	2 EA
		LM-6 (36)	2 EA
		LM-5 (35)	2 EA
LM	LDW280-54602	LM-4 (34)	2 EA
PART NO. LDW280-18523 -13, -14, -15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54602	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54602	LM-4 (34)	1 EA
PART NO. LDW280-18523-11 & -19		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00							
REV											
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REF INFO
PRIM NO. JK(001)
207 MP-16 2/20/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 (CCA586)

OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO 2-8-68	MATL	
LAYOUT BY	G. HANSMANN G.H. 2-9-68		
CHECKED BY	2-8-68		
GR LEADER	2/15/68		
VEH DSGN INT	2/1/68		
STRUCTURES	NM WH 2/19/68	PROJ ENGR	2/15/68
STRUCTURES	2/19/68	REL GROUP	2-20-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-SCIENTIFIC EQUIP. BAY
THERMAL DOOR

SIZE B
CODE IDENT NO. 26512
LDW280-18523
SCALE NONE
SHEET 1.00 OF 3

CDR 2-16-68

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18523-19	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.063 X 3 X 5	T6	88	
		-17		PLATE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 2 X 2	T6	88	
		-15		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE # 22417 X 2	NOTE 2	NOTE 2	
		-14		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 X 2 X 3	T6	88	
		-13		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 X 2 X 3	T6	88	
		LDW280-18523-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 3 X 31	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

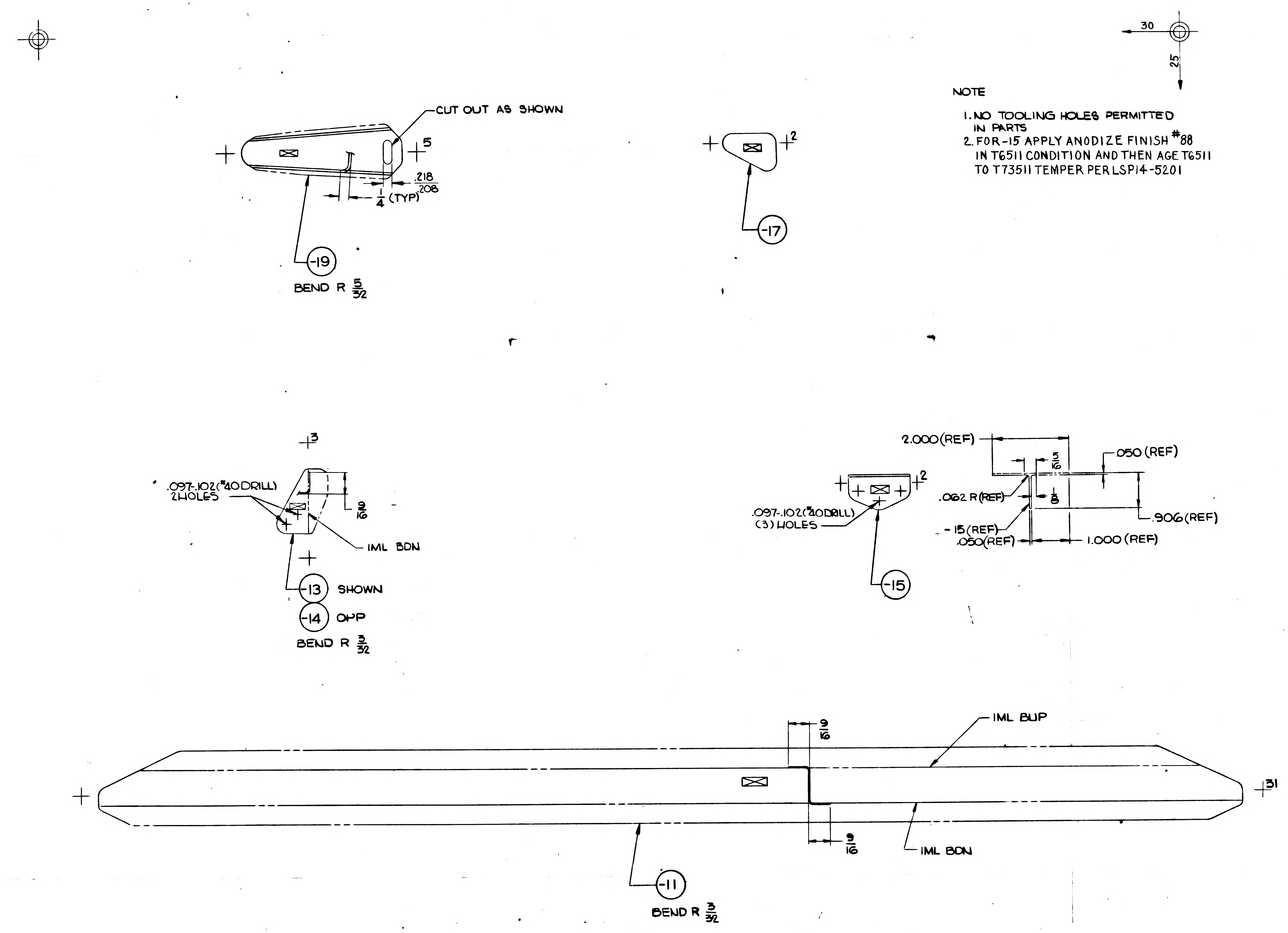
SIZE B
CODE IDENT NO. 26512
LDW280-18523
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM. #K
T.S. 2.6.68


30
25
CUT OUT AS SHOWN
5
.218
.208
1/4 (TYP)
-19
BEND R 5/32
2
-17
3
.097-.102(#40 DRILL) 2 HOLES
9/16
IML BDN
-13 SHOWN
-14 OPP
BEND R 3/32
2
.097-.102(#40 DRILL) (3) HOLES
-15
2.000 (REF)
5/16
.050 (REF)
.062 R (REF)
1/8
.906 (REF)
-15 (REF)
.050 (REF)
1.000 (REF)
9/16
IML BUP
31
IML BDN
9/16
-11
BEND R 3/32

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS
2. FOR -15 APPLY ANODIZE FINISH #88 IN T6511 CONDITION AND THEN AGE T6511 TO T73511 TEMPER PER LSP14-5201

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18523

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK
LM
MODEL OR END ITEM
SIZE F
CODE IDENT NO. 26512
LDW280-18523
SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 735 644

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP. CODE IDENT NO. 26512 **ENGINEERING ORDER**	DWG. NO. LEO 280 · EO NO. 966 CONTROL INFO NO. LDW280 B-3249

ENG 32.2 REV 3-65

ADD TM-5/R(65)EFF TO THE FOLLOWING DWGS & DASH NOS.

DWG NO.(*)	NO REQD PER VEH	N/A	TITLE	CHG NO
/				
/				
/				
LDW280-54837-3	1	LDW280-54602	SEE DWG	A7 ✓
-54837-5	1			
-54837-7	1			
-18464-17	1			A1 ✓
-18464-11	1			
18464-13	1			
18464-15	1			
18465-11	2			A1 ✓
-12	2			
-13	1			
-14	1			
-15	1			
-17	1			
18465-19	2			
18466-11	1			A1 ✓
-12	1			
-13	1			
-14	1			
-15	2			
-16	2			
-17	2			
18466-18	2			
18467-11	1			A1 ✓
-13	1			
-15	1			
-17	1			
LDW280-18467-19	1	LDW280-54602	SEE DWG	

DWG NO.	NO REQD PER VEH	N/A	TITLE	CHG NO.
/				
LDW280-18474-11	1	LDW280-54602	SEE DWG	A1 ✓
-12	1			
-13	1			
-14	1			
-15	1			
-17	1			
18474-19	1			
18523-11	1			A1 ✓
-13	2			
-15	2			
-17	2			
18523-19	1			
18523-14	2			A2
M17845-11	1			
M17839-11	4			A2
M17841-11	2			A1
M17843-11	2			A2
M17844-11	1			A1
M17844-12	1			
M17846-11	1			A1
LDW280M17846-12	1	LDW280-54602	SEE DWG	
/				
/				
/				
/				
/				
/				
/				

01

NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD3075CCA 586		PKG 2I		(5)
REASON FOR EO: TO INCLUDE ALSEP ON TM-5/R(65)			DESCRIPTION OF EO: ON(*) ADDED TM-5/R (65) REQMTS				GAEC Q.C. EO RELEASE: [illegible]
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQD	APPROVED BY: [illegible] DATE 5/13/68 VDI · SUPPORT · RELIAB. GROUP · GROUP LEADER 5-13-68 · STRESS GROUP · LIAISON ENGRG · PROJ ENGRG 5/13/68 · 5-21-68	
LM		TM-5/R(65)		PRIORITY: C	DRAWING TITLE: SEE DWG	DRAWING NO.: LEO 280	EO NO. 966

ISSUED BY 5-17-68 W MAJUK X3352 SECTION VDI GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 982
CONTROL INFO NO. LDW280B2910

FOR ALL PART NO'S LISTED BELOW ADD LTA 8 (18) EFFECTIVITY WITH QUANTITIES REMAINING THE SAME AS THAT GIVEN FOR N/A LDW280-54602, LM-4(34) VEHICLE:

*PART NUMBERS	N/A	CHANGE NO.
LDW280M17862 -37, -59, -39, -51 & -53	LDW280-66602	B2
LDW280M17846-11, -12	↕	A2
LDW280M17845-11,	↕	A3
LDW280M17844-11, -12	↕	A2
LDW280M17843-11	↕	A3
LDW280M17841 -11	↕	A2
LDW280M17839 -11	↕	A4
LDW280M17804-19, -21	↕	A3
LDW280 -18523 -11, -13 -14 -15 -17 & -19	↕	A2
LDW280 -18474 -11, -12, -13, -14, -15, -17 & -19	↕	A2
LDW280-18467-11 -13 -15 -17 & -19	↕	A2
LDW280-18466 -11, -12, -13, -14, -15, -16, -17 & -18	↕	A2
LDW280 -18465-11 -12 -13 -14 -15 -17 & -19	↕	A2
LDW280-18464 -11. -13 -15 & -17	LDW280-66602	A2

LFM

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 1021-33 CCA 498 PKG 6 ⑤

REASON FOR EO: TO ADD LM 4(34) REQ'M'TS ON LTA-8(18) VEHICLE

DESCRIPTION OF EO: ON -(*) ADDED END ITEM LFM 126 REQMTS.

GAEC EO RELEASE: ✓ C VK 5/28/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQ'D
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JaP	MO		PSt	WJN		CaP	J.W.
DATE	5/16/68	5/16/68		5-15-68	5/16/68		5/16/68	5-27-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG FOR TITLE	LEO 280	982

5-17-68
ISSUED BY J. FIORELLO (X1681)
SECTION VD I
GROUP NO. 280 PL 25

01
NAS 9-1100

LEM

ENG 32.2 REV 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO 280
EO NO.	995
CONTROL INFO NO.	LDW 280 B3475

FOR THE FOLLOWING DWG'S ADD M3/FVV (03) REQUIREMENTS FOR THE NEXT ASSY & QUANTITIES NOTED.

	DWG NUMBER (*)	TITLE	NEXT ASSY.	QTY/MOD	CHG NO.
✓	LDW280-54742-1,-3 & -5	✓	LMU280-31216	1 EACH	A2
✓	LDW280P18282-1	✓	LMU280-31216	1	A9
✓	LDW280-66837-1 & -3		LMU280-31218	1 EACH	A2
✓	LDW280-66793-1 & -3	✓		2 EACH.	A1
✓	LDW280-18464-11,-13,-15,-17	✓		1 EACH.	A3
✓	LDW280-18465 -11,-12,-19 -13,-14,-15-16	✓		2 EACH. 1 EACH.	A3
✓	LDW280-18466 -11-12-13-14 -15,-16,-17,-18	✓		1 EACH. 2 EACH.	A3
✓	LDW280-18467-11,-13,-15,-17,-19	✓		1 EACH	A3
✓	LDW280-18474-11,-12,-13,-14,-15,-17,-19	✓		1 EACH.	A3
✓	LDW280-18523 -11, -19 -13,-14,-15,-17	✓ SEE DWG		1 EACH. 2 EACH	A3
	LDW280M17845-11	✓		1	A4
	LDW280M17839-11	✓		4	A5
	LDW280M17841-11	✓		2	A3
	LDW280M17843-11	✓		2	A4
	LDW280M17844-11,-12	✓		1 EACH	A3
	LDW280M17846-11,-12	✓		1 EACH.	A3
	LDW280M17804 -19 -21	✓	LMU280-31218	4 2	A4
	LDW280-54767-1,-3,-5,-7	✓	LMU280-31217	1 EACH.	A2
	LDW280-18562-11 -13 -15,-17,-19	✓	LDW280-66674	7 2 1 EACH.	A4
	LDW280-54647-1	✓	LMU280-31216	1	A1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3049 CCA 1064 PKG 3 & 4		(5)

REASON FOR EO: UPDATE M3 MOCKUP TO LM-4 QUAD II CONFIGURATION.

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 164 REQMTS.

GAEC EO RELEASE: C JK 6/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV (03)	

DRAWING CHANGE REQD	REVISE DWG ✓	RECORD EO
DISPOSITION OF PARTS	NOT REQD	REWORK / SCRAP
PRIORITY	C	

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					W/H			
DATE	5/24/68			5-24-68	5/24/68	5/24/68	6-4-68	

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 995

5-24-68
ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

01

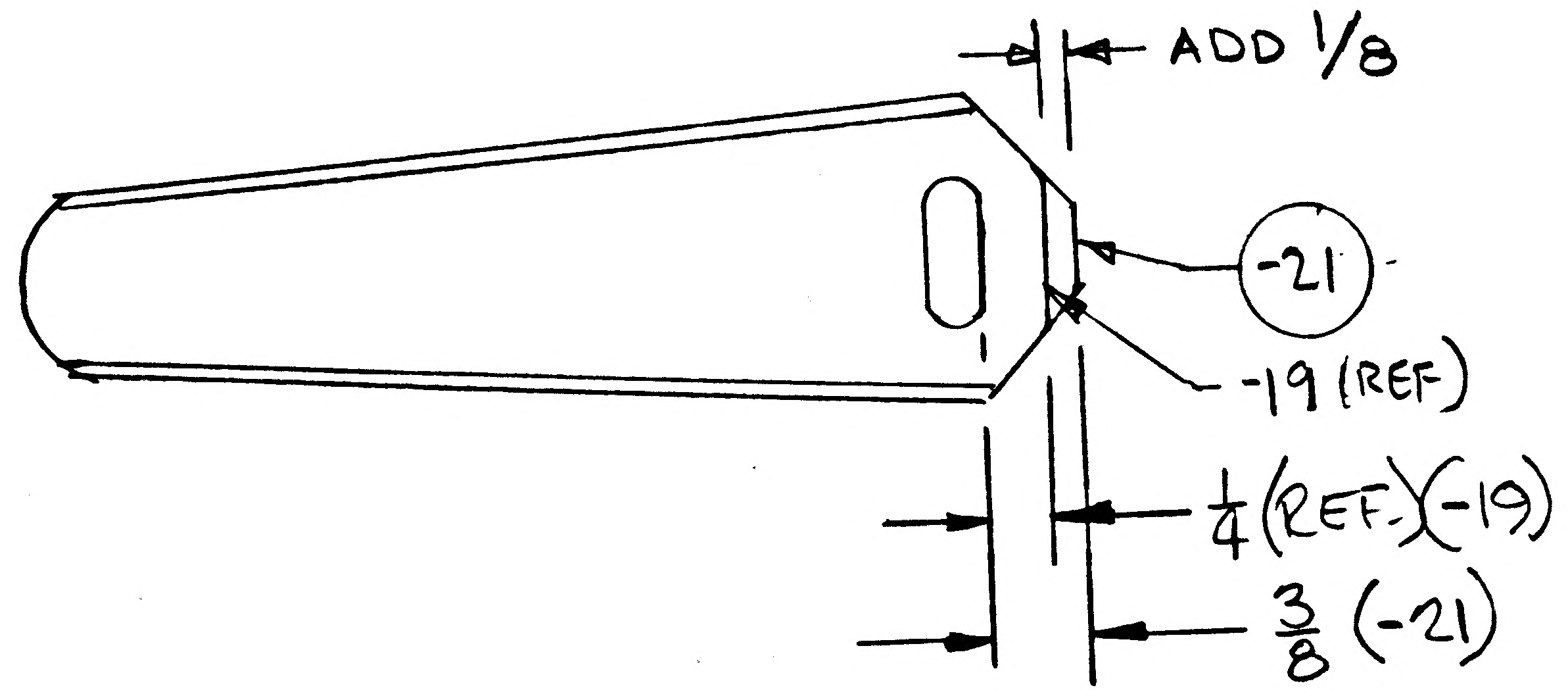
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-18523 | EO NO. A4
CONTROL INFO NO. LDW280B4895

ADD -21 IDENTICAL TO -19 EXCEPT AS NOTED. -21 EFF LM 4(34) THRU LM-15(45), DVT(70), TM-5/R(65). RESTRICT -19 TO LTA-8(18) & M3/FV2(03) (WAS) LM-4(34) THRU LM-15(45), DVT(70), TM5/R(65), LTA-8(18) & M3/FV2(03)



-21 N/A LDW280-54602
1 REQD/VEH

(5)

✓ LCD 3075 CCA586 PKG 2I
LCC 1433 CCA586 PKG 18

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓

GAEC EO RELEASE: C JC 8/2/68

REASON FOR EO: IMPROVE SLOT ALIGNMENT WITH DOOR LOCK PIN BY ALLOWING PART TO ACT AS DOOR STOP.

DESCRIPTION OF EO: ADDED -21
RESTRICTED -19 TO LTA-8(18) & M3/FV2(03) (WAS) LM-4(34) THRU LM-15(45), DVT(70), TM5/R(65), LTA-8(18) & M3/FV2(03)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	TM-5/R(65)		
LM	DVT(70)		
LM	LM4(34) THRU LM-15(45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	7/26/68	7/26/68		7/26/68	7/26/68		7/26/68	8-2-68	
G	VD1	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C
DRAWING TITLE: ZEE -D/S- SCIENTIFIC EQUIP BAY THERMAL DOOR
DRAWING NO.: LDW280-18523
EO NO.: A4

080768
ISSUED BY J.LANG/P. THORJUSEN. X1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
↑ -18524	A3	↑
-18525	B3	
-18530	A2	
-18531	B1	
-18538	A1	
-18550	A1	
-18553	A1	
↓ -18557	A3	↓
LDW280-18558	A5	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —✱

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/16/69			4-2-69	4/16/69		04/16/69	4/16/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION YEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1557
CONTROL INFO NO. LDW280B 8119		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

	DRAWING № *	TITLE	CHANGE №
✓	LDW280-18507	SEE DWG	B2
✓	512		B3
✓	513		A7
✓	514		B4
✓	515		B3
✓	517		A3
✓	523		A6
	524		A4
	525		B4
	LDW280-18530	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CH	✓	LCD 3890 PKG 99 PG 37 & 38	

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (.23) REQ'MTS

GAEC EO RELEASE (5)
SWB 8-13-69
JK 8/15/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

N
Bauman

~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ml) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1826
CONTROL INFO NO. LDW280B9843

FOR ALL DASH NOS LISTED BELOW DELETE LTA-11(23) REQ'TS FOR THE NOTED NEXT ASSY'S

DRAWING NO	DASH NO *	TITLE	NEXT ASSY	CHANGE NO
✓ LDW280-18464	-11, -13, -15, -17	SEE DWG	LDW280-54602	A7
✓ LDW280-18465	-11, -12, -13, -14, -15 -17, -19			B1
✓ LDW280-18466	-11, -12, -13, -14, -15, -16 -15-1, -16-1, -17, -18			B1
✓ LDW280-18523	-11, -13, -14, -15, -17, -21			A7
LDW280M17839	-11			B2
LDW280M17841	-11			A6
LDW280M17843	-11			A7
LDW280M17844	-11, -12			A6
LDW280M17845	-11			B2
LDW280M17846	-11, -12	SEE DWG	LDW280-54602	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 103 (5)

REASON FOR EO: SEQ BAY DOOR NOT REQD ON LTA-11

DESCRIPTION OF EO: FOR * REMOVED LTA-11(23) REQMTS

GAEC EO RELEASE: JK 1/28/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	PSt						PST	
DATE	1-26-70			1/26/70	1/26/70		1-27-70	1/28/70

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1826

CDR 013070
ISSUED BY P. LANDRY / G. HANSMANN x 87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18524

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQ'D PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23579	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-23579	LM-4 (34)	1 EA
PART NO. LDW 280-18524-11,-13, -15, &-17		GAEC SCH NO. 51	

WORK PACKAGE FUNCTION # 1.0 PKG.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL^c INFO		
LAST DASH NO. USED	-17	PRIM NO.	HF-001	
		207	MP-16-	2/13/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

G	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD#1433-CCA596
ok

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II | (5)

DRAWN BY	W. CONROY 2-1-68	RELIABILITY		
LAYOUT BY	J. LANG			
CHECKED BY	WCG 2/8/68			
GRP LEADER	2-9-68			
VEH DES INT	J. Pusateri 2/9/68			
STRUCTURE	2/12/68	PROJ ENGR	J. Pusateri 2/9/	
STRUCTURE	Feb 2/12/	PREL GROUP	C. N. Botti	
WEIGHTS				

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-QUAD II ASTRO DOOR
SHLD UPPER HINGE SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18524
SCALE	NONE	SHEET 1.00 OF 3

CDR 2-16-68

ENG 77.1 12-65

01
NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18524-17	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2 x 3	T6	88	
		-15		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #89479 x 3/4	NOTE 2	NOTE 2	
		-13		GUSSET	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 x 2 x 2	NONE	88	
		LDW280-18524-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-T6	.032 x 3 x 10	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18524

SCALE NONE

SHEET 2.00

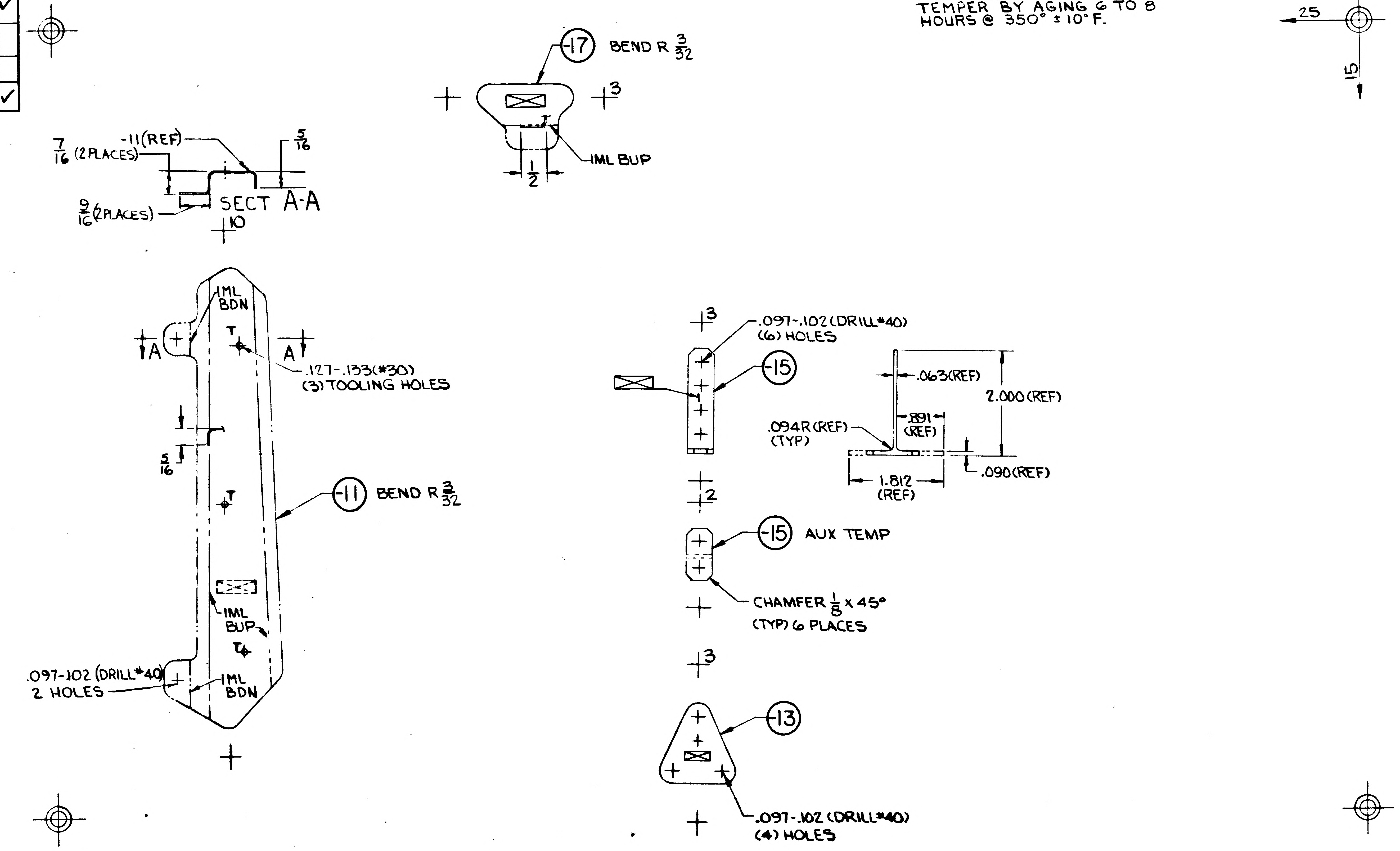
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [redacted]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE
1- NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.
2- APPLY ANODIZE FINISH #88 IN T6511 CONDITION AND THEN AGE T6511 TO T73511 TEMPER BY AGING 6 TO 8 HOURS @ 350° ± 10° F.



-17
BEND R 3/32
3
IML BUP
1/2
25
15
7/16 (2 PLACES)
-11 (REF)
5/16
9/16 (2 PLACES)
SECT A-A
10
IML BDN
A
A
.127-.133 (#30) (3) TOOLING HOLES
T
5/16
-11
BEND R 3/32
IML BUP
.097-.102 (DRILL #40) 2 HOLES
IML BDN
3
.097-.102 (DRILL #40) (6) HOLES
-15
.063 (REF)
2.000 (REF)
.094R (REF) (TYP)
.891 (REF)
1.812 (REF)
.090 (REF)
2
-15
AUX TEMP
CHAMFER 1/8 x 45° (TYP) 6 PLACES
3
-13
.097-.102 (DRILL #40) (4) HOLES

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE D
CODE IDENT NO. 26512
LDW280-18524
SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCT

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LE0280 | EO NO. 963
CONTROL INFO NO. LDW280B3378

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQUIREMENTS, N/A LDW280-23579 FOR QUANTITIES NOTED.

DWG. NO. *	TITLE	REQD/MOD.	CHG. NO.
	SEE DWG.		
LDW280 M17729-11		1	A5
-17885-23 -17885-25 -17885-27		1 1 2	B8
M17822-11		1	A1
-17886-27-1 -17886-21 -17886-23 -17886-25		1 1 1 1	C7
-17973-11 -17973-15		1 1	A5
-18524-11 -18524-13 -18524-15 -18524-17		1 1 1 1	A1
-18382-15		1	A3
LDW280-18478-11	SEE DWG.	1	A2

LEO 951

NAS 9-1100

DETAIL SPEC REQ | CL II ENGRG CHG | CL I ENGRG CHG ✓ LCD 3075 CCA 586 PKG 2K (8) (5)

GAEC C EO RELEASE

REASON FOR EO: ADD TM-5/R(65) REQUIREMENTS

DESCRIPTION OF EO: ON-*ADDED TM-5/R(65) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	
	VDI							

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO. LE0280

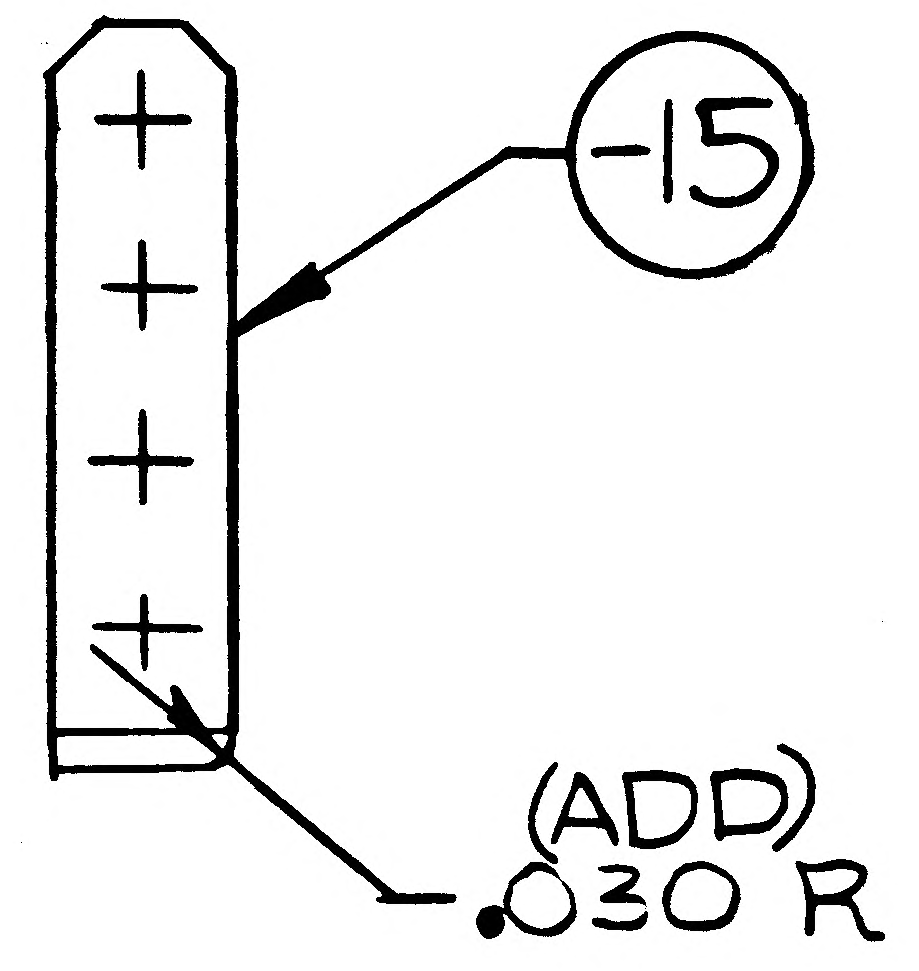
EO NO. 963

5-17-68
ISSUED BY E. RANSOM /G. HANSMANN X3352 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LDW280-18524		EO NO. A2
CONTROL INFO NO. LM-2-4913		

IN B/M & F/D



BRUSH ALODINE REWORKED AREAS. (FIN 76)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 1433 CCA 536 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE 8/31/68
TO ALLOW PROPER FIT ON N.H.A.	ADDED .030R TO -15	

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY				Z				
DATE	8/30/68				8-21-68	8/21/68	8/30/68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S-QUAD II ASTRO DOOR SHLD UPPER HINGE SUPPT	LDW280-18524	A2

ISSUED BY LIAISON John J. BLASE x3604 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525	B3	
-18530	A2	
-18531	B1	
-18538	A1	
-18550	A1	
-18553	A1	
-18557	A3	
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JC 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/16/69			4-2-69	4/8/69		4/4/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1557
CONTROL INFO NO. LDW 280B 8119

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
✓ 515		B3
✓ 517		A3
✓ 523		A6
✓ 524		A4
525		B4
LDW 280-18530	SEE DWG	A3

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (.23) REQMTS

GAEC EO RELEASE (5): SWB 8-13-69; JK 8/1/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	PT				N			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/69	8-15-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1621
CONTROL INFO NO. LDW280B 8440

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW280-17710 ✓	SEE DRAWING	LDW280-23579	B3
-17739 ✓		-23579	D3
-17885 ✓		-23579	C3
-17886 ✓		-23579	D3
-17973 ✓		-23579	B2
-18382 ✓		-23579	A6
M17729 ✓		-23579	B2
M17822		-23579	A4
LDW280-18524 ✓		-23579	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,5 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SdB 8-27-69; JK 8/26/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — N/C N/A

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8-8-69			8/4/69	W/W 8/12/69		8/12/69	8/13/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1621

8-26-69
ISSUED BY A. FURIO Y86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18525 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52663	LM-5(35)	16
LM	LDW280-52663	LM-15(45)	16
↑	↑	LM-14(44)	↑
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
↓	↓	LM-7(37)	↓
LM	LDW280-52663	LM-6(36)	16
PART NO. LDW 280-18525-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. SK(001)

207 MP-1A 4/9/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2532

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	R. KINGSBURY 4-1-68	RELIABILITY	
LAYOUT BY	SHAPIRO		
CHECKED BY			
GP LEADER	PST 3-18-68		
VEH DES INT	JAP 3-18-68		
STRUCT	WJH 3-18-68	PROJ ENGR	JAP 3-18-68
STRUCT		REL GROUP	JRT 3-18-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - REM BASE HEAT SHIELD
PROPELLANT QTY GAUGE SYS ACCESS DOOR

SIZE B CODE IDENT NO. 26512 LDW280-18525 A

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		S		✓		EO A1 LCD 2532	INITIAL DWG RELEASE. PARTS MADE PER E.O.	LM-6 THRU LM-15	NOT	REQD	KINGSBURY 4-1-68		
	2	1.00		S		✓		LE0280-908 LCD2532	FOR-11 ADDED LM-5	LM-5	NOT	REQD			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18525	A
SCALE	NONE		SHEET 1.10

ENG 77.3 5-66

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18525-11	E	CLIP	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL-4VANL	.020 X 7/8 X 1	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

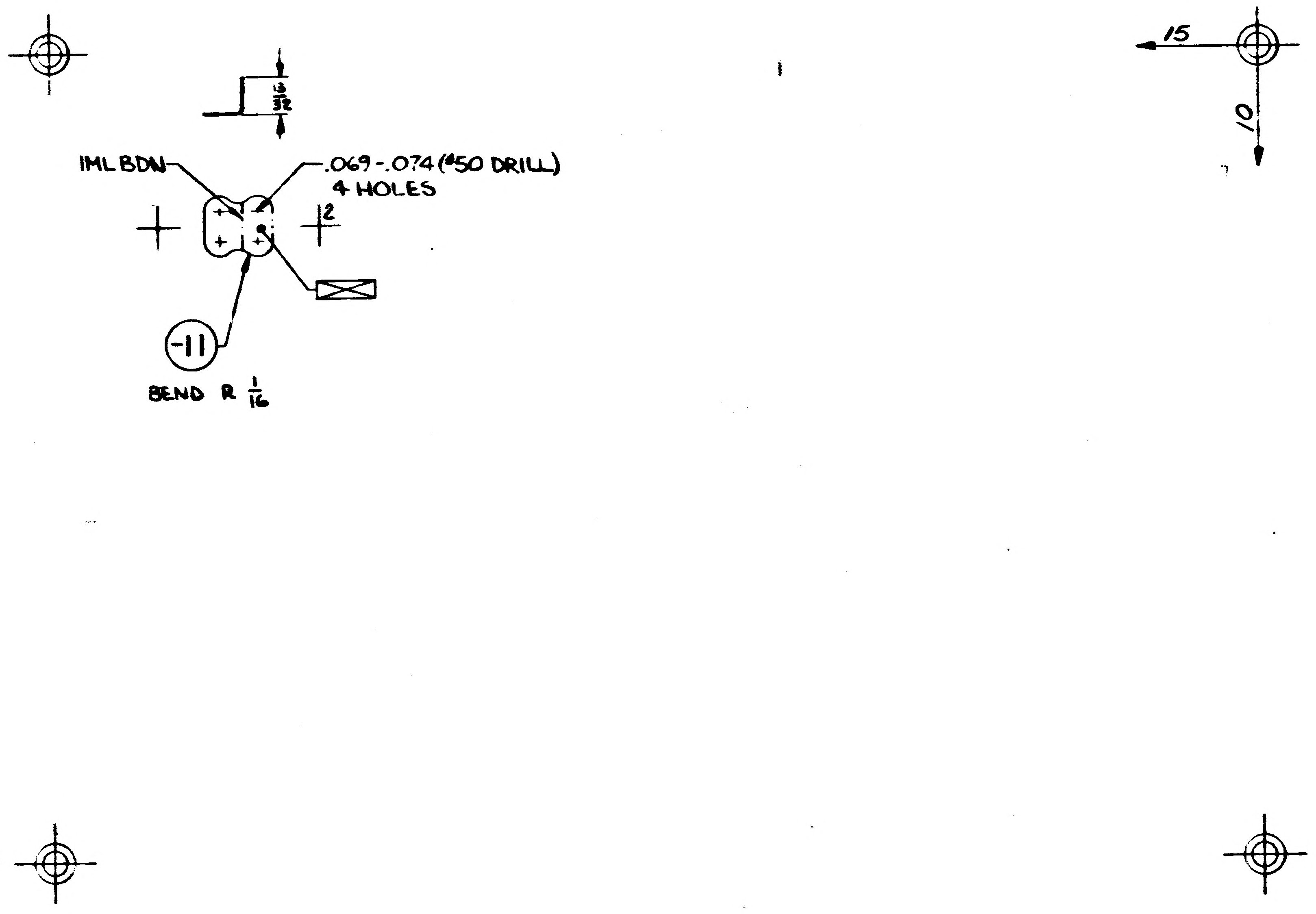
SIZE B
CODE IDENT NO. 26512
NONE
LDW280-18525
A ⒜
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

4 3 2 1

TRAN OK 4-..-68



MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-18525	A
	SCALE FULL			SHEET 3.00

LDW280-18525 A

LDW280-18525 A

D C B A

4 3 2 FOR PHOTO REPRODUCTION 1

K2

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18525 | EO NO. B1
CONTROL INFO NO. LDW 280 B 5466

IN B/M FOR-11

REVISE N/A FROM LDW 280-52663 TO
LDW 280-66663. EFF LM-6(36) THRU LM-15(45)

ADD LFM 200- LM-5(35) EFF. N/A LDW 280-66663
QTY'S REQD IS THE SAME AS FOR LM-6(36)

ADD DVT(70) EFF N/A LDW 280-66663
4 REQD PER MODULE

ADD NOTE * "THIS DWG AFFECTED BY LFM 200
WHICH MAY BE USED ON LM-5(35)

LFM

* USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 2965 PKG 1 CCA 1235 ⑤

REASON FOR EO: BASE HEAT SHIELD REDESIGN D/E THRUST DECAY

DESCRIPTION OF EO: FOR-11 REVISED N/A FROM LDW 280-52663 TO LDW 280-66663 EFF LM-6(36) THRU LM-15(45), ADDED LFM 200-LM-5(35) EFF. N/A LDW 280-66663. ADDED DUT(70) EFF. N/A LDW 280-66663 ADDED NOTE *

GAEC EO RELEASE: C HF 9/25/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)
LM		LFM 200 - LM-5(35)	
LM		DUT(70)	

COR 092768

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY								
DATE	9/17/68			9-16-68	9/17/68		9/17/68	9-25-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: CLIP - D/S - REM BASE HEAT SHIELD PROPELLANT QTY GAUGE SYS ACCESS DOOR
DRAWING NO. LDW280-18525
EO NO. B1

ISSUED BY R. MARONE/G. ZEMAN/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1151
CONTROL INFO NO. LDW280B5635

CHG. LTR	DWG NO.*	**RESTRICT FOR USE ON	***WAS USED ON
✓ A7	LDW280-17541-11	LTA-3D/R, LTA-5(15), LTA-8(18), DVT(70), QT(72), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), & LFM200 LM-5(35).	LTA-3 D/R, LTA-5(15), LTA-8(18), DVT(70), QT(72), LM-1(31) THRU LM-15(45), & LFM200 LM-5(35)
✓ A8	LDW280-17542-11	LTA-3 D/R, LTA-5(15), LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), DVT(70), QT(72), LFM200 LM-5(35).	LTA-3 D/R, LTA-5(15), LTA-8(18), LM-1(31) THRU LM-15(45), DVT(70), QT(72), LFM200 LM-5(35).
✓ B5	LDW280-17556-11 -12, -13, -14	LTA-3 D/R, LTA-5(15), LTA-8(18), DVT(70), QT(72), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM200 LM-5(35).	LTA-3 D/R, LTA-5(15), LTA-8(18), DVT(70) QT(72), LM-1(31) THRU LM-15(45) LFM200 LM-5(35).
A5 ✓	LDW280-17481-11	LTA-3 D/R, LTA-5(15), LTA-8(18), QT(72), LM-1(31) THRU LM-4(34)	LTA-3 D/R, LTA-5(15), LTA-8(18), QT(72) LM-1(31) THRU LM-5 (35).
✓ B2	LDW 280-18525-11	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35) DVT(70)	LM-5(35) THRU LM 15(45) LFM200 LM-5(35) DVT(70)

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

(5)

GAEC EO RELEASE

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	10/7/68			10-7-68	10/8/68		10/8/68	10-15-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1151

CDR 10/25/68
ISSUED BY JOE LUCCHESI / G. ZEMAN x86046 SECTION V. D. I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	↑
-18525 ✓	B3	
-18530	A2	
-18531	B1	
-18538	A1	
-18550	A1	
-18553	A1	
-18557	A3	↓
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: VC 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				08				
DATE	4/16/69			4-2-69	4/3/69		4/4/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION YEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 RE 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280
EO NO. 1557
CONTROL INFO NO. LDW 280B 8119

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
✓ 515		B3
✓ 517		A3
✓ 523		A6
✓ 524		A4
✓ 525		B4
LDW 280-18530	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (5)
SWB 8-13-69
JK 8/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					N			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/4/69	8-15-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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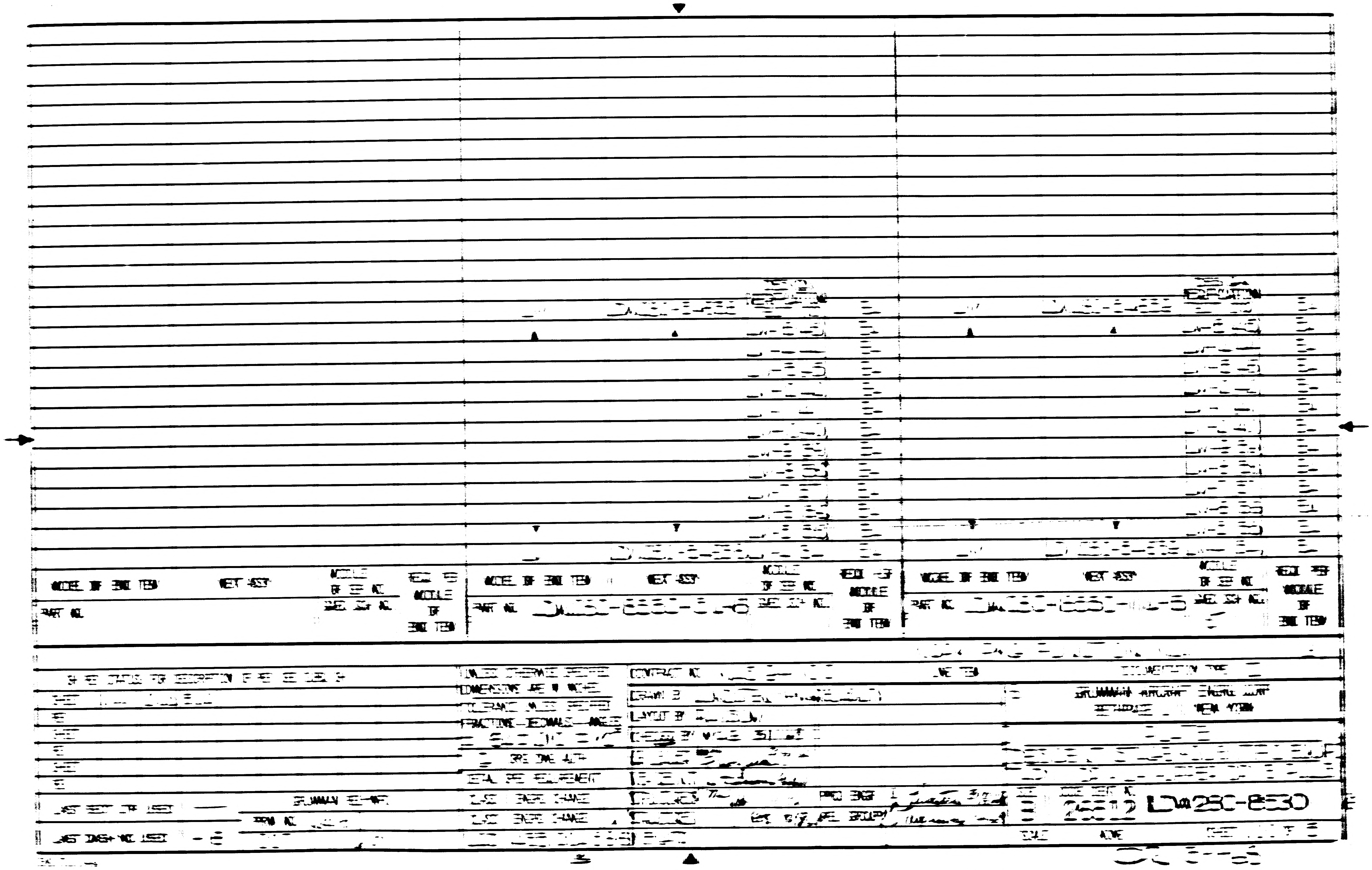
NAS 9-1100


MODEL OR END ITEM
NEXT ASSY
PART NO.
PART NO. LDW280-8530
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
LINE ITEM
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE NEW YORK
LAST DASH NO. USED
26512 LDW280-8530
SCALE NONE

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	U/M	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18530-6	E		PLATE	TITANIUM SH	MIL-T-9046 TYPE III	6AL-4V	.063 x 7 3/8 x 8 1/2	CM	NONE	
	-5	E		PLATE	TITANIUM SH	COMP C COND ST	↕	.063 x 7 3/8 x 8 1/2	CM	NONE	
	-3	E		PLATE	TITANIUM SH	MIL-T-9046 TYPE III	↕	.020 x 4 1/4 x 7 3/8	CM	NONE	
	LDW280-18530-1	E		PLATE	TITANIUM SH	COMP C COND ST	6AL-4V	.063 x 4 1/4 x 6 3/8	CM	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEMICAL MILLING	SP 4-261CC

I & T CERTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L. I. NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18530

SCALE NONE

SHEET 2

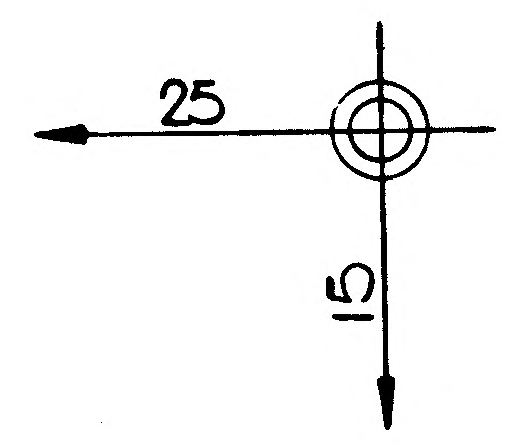
NAS 9-1100

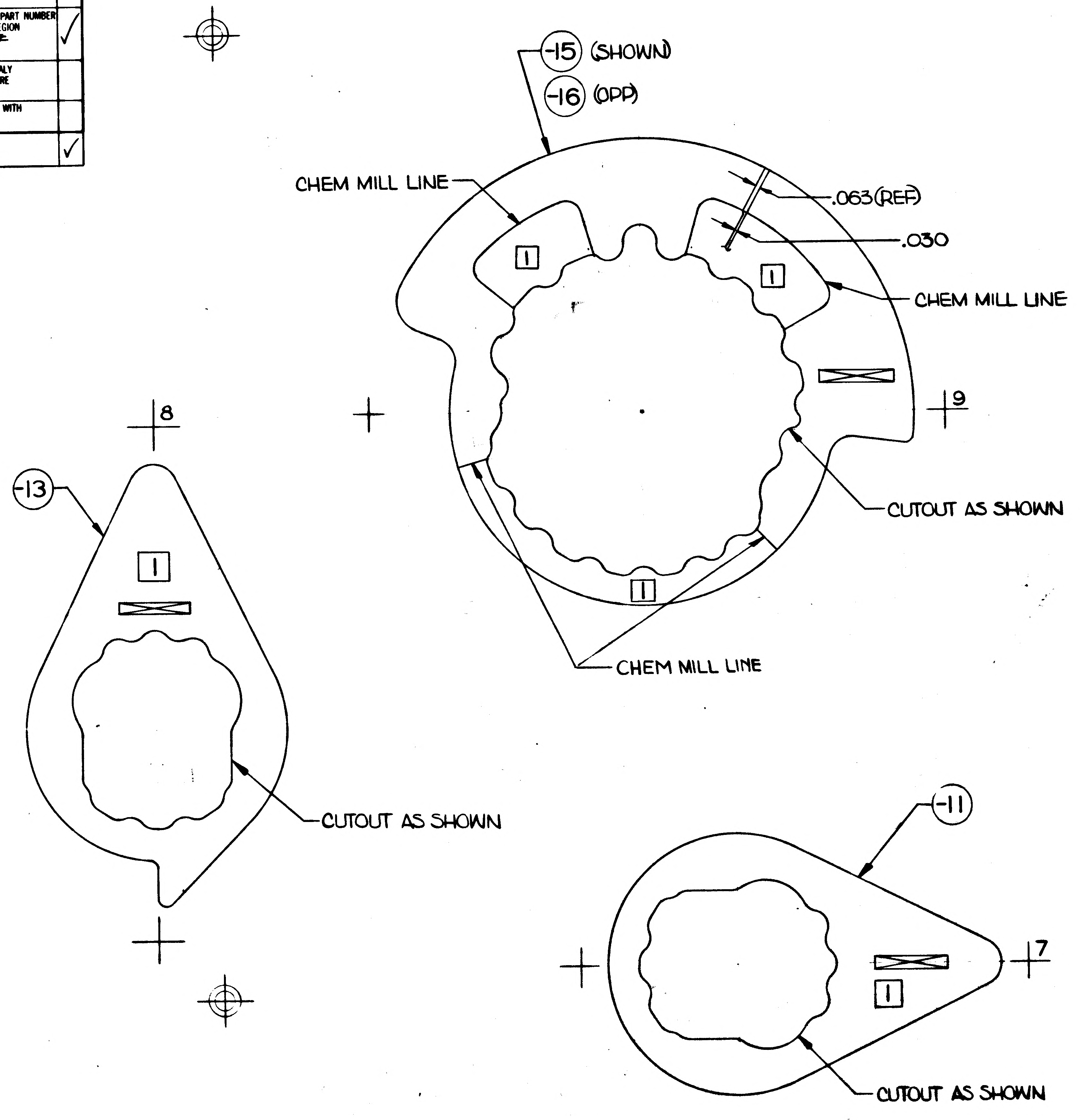
LDW280-18530

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.




-15 (SHOWN)
-16 (OPP)
CHEM MILL LINE
.063 (REF)
.030
CHEM MILL LINE
I
9
CUTOUT AS SHOWN
CHEM MILL LINE
8
-13
I
CUTOUT AS SHOWN
-11
7
I
CUTOUT AS SHOWN

LDW280-18530-11

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	.055 ± .002	.008 REF

LDW280-18530-13

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	.067 ± .002	.013 REF

LDW280-18530-15 & -16

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	$.030^{+.003}_{-.002}$	.033 REF

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512.	LDW280-18530
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 960
CONTROL INFO NO. LDW280B3372

FOR THE FOLLOWING PART NOs ADD TM-5/R$^{(65)}$ REQMTS FOR THE N/A INDICATED FOR THE QUANTITIES NOTED

PART NO.*	TITLE	N/A	REQD/MOD	CHANGE NO
LDW280-18562-11	SEE DWG	LDW280-54674	7	A2
-18562-13			2	
-18562-15			1	
-18562-17			1	
-18562-19			1	
-18468-17			8	A4
-18468-19		-54674	3	
-18468-11		-54837	2	
-18468-13			2	
-18468-15			4	
-18468-17			10	
-18468-19			20	
-18468-21		-54837	1	
M17801-11		-54793	14	A1
M17802-11			7	A1
M17803-11			14	A1
M17838-11		-54793	12	A2
M17838-13		-66503	2	
-18418-13		-66502	1	A3
M17797-13		-54639	1	A3
-18530-11			1	A1
-18530-13		-54639	1	
-18530-15		-54638	1	
-18530-16		-54638	1	
-54767-1		-54648	1	A1
-54767-3			1	
-54767-5			1	
-54767-7			1	
LDW280-54602-1	SEE DWG	LDW280-54648	1	A2
LDW280M17798-13	SEE DWG	LDW280-54638	1	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 25 (5)

REASON FOR EO: ADD TM-5/R$^{(65)}$ REQMTS

DESCRIPTION OF EO: ON(*) ADDED TM-5/R$^{(65)}$ REQMTS

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JAS			GH. PS4	M/H		
DATE	5/13/68			5-13-68	5/13/68		5/13/68
	VDI						

5-20-68

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO280

EO NO.: 960

5-17-68

ISSUED BY T. COTTER × 3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B 7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525 ✓	B3	
-18530 ✓	A2	
-18531	B1	
-18538	A1	
-18550	A1	
-18553	A1	
-18557	A3	
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				88+				
DATE	4/18/69			4-2-69	4/8/69		4/4/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION YEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1557
CONTROL INFO NO. LDW 280B E 19

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18507	SEE DWG	B2
✓ 512		B3
✓ 513		A7
✓ 514		B4
✓ 515		B3
✓ 517		A3
✓ 523		A6
✓ 524		A4
✓ 525		B4
✓ LDW 280-13530	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 37 & 38

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (5) SWB 8-13-69
JK 8/15/9

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/?/69 Bauman 8-15-69
LM		LTA-11 ([redacted]) (23)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP N	LIAISON ENGRG	PROJ ENGRG ~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1557

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-4(34)	1EA

PART NO. LDW280-1853-118-13

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-15(45)	1EA
↑	↑	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
↓	↓	LM-6(36)	1EA
LM	LDW280-54791	LM-5(35)	1EA

PART NO. LDW280-18531-15&17

GAEC SCH NO. 50

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-17	207	MF-KH 4/2/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

D	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2011 (CCA 668)	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	GARRAFFO 2/10/68		
LAYOUT BY	a. Richer 2/14/68		
CHECKED BY	2-13-68		
GR LEADER	2/15/68		
VEH DES INT	2/16/68		
STRUCTURES	2/16/68	PROJ ENGR	2/15/68
STRUCTURES	2/16/68	REL GROUP	J. Tagliavia 4/1/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE~TV
CONNECTOR SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18531	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 9-64

ref PKG 26

2/23

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00.1.10 2.00.3.00				✓		LCD 2011 CCA668	RESTRICT -11 & -13 TO LM-4. ADDED -15 & -17 ADDED SH 1.10	LM-5 THRU LM-15		-11 & -13	GIORDANO 8-15-68		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS
	A	8-23-68	8/23/68	NM 8/23/68	8/23/68	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18531	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18531-17	E	PLATE	AL ALLOY SH	QQ-A-250/4	7075-T6	.040×4×4	NONE	88	
		LDW280-18531-15	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032×5×8	NONE	88	
		LDW280-18531-13	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040x 4x4	NONE	88	
		LDW280-18531-11	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032x6x9	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18531	A ①

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

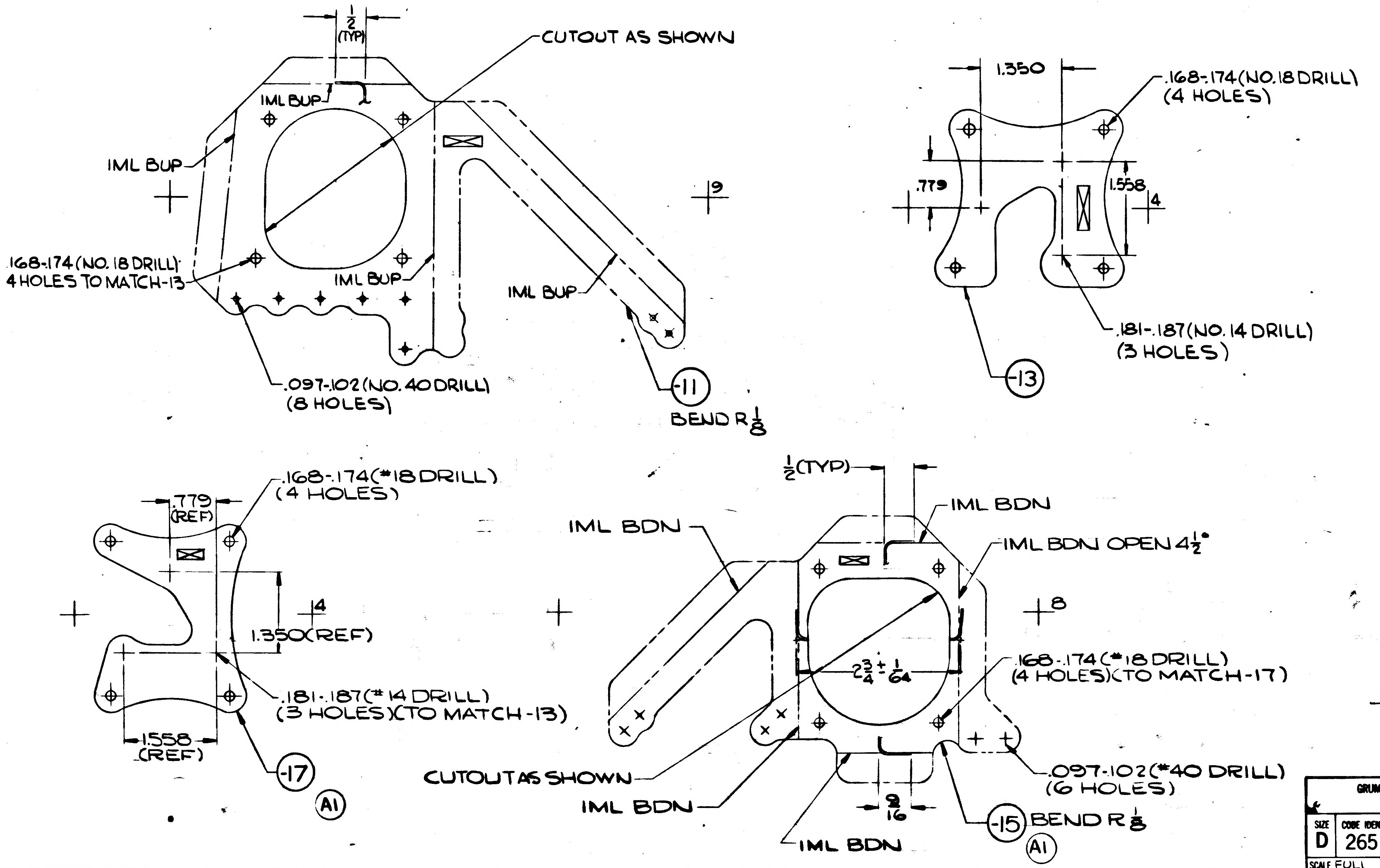
NAS 9-1100

LDW280-18531 A

TRAN OK
T L 2-9-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD 130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


1/2 (TYP)
CUTOUT AS SHOWN
IML BUP
IML BUP
.168-.174 (NO. 18 DRILL) 4 HOLES TO MATCH-13
IML BUP
IML BUP
9
.097-.102 (NO. 40 DRILL) (8 HOLES)
-11
BEND R 1/8
1.350
.168-.174 (NO. 18 DRILL) (4 HOLES)
.779
1.558
4
.181-.187 (NO. 14 DRILL) (3 HOLES)
-13
.779 (REF)
.168-.174 (#18 DRILL) (4 HOLES)
4
1.350 (REF)
.181-.187 (#14 DRILL) (3 HOLES) (TO MATCH-13)
1.558 (REF)
-17
A1
1/2 (TYP)
IML BDN
IML BDN
IML BDN OPEN 4 1/2°
8
2 3/4 ± 1/64
.168-.174 (#18 DRILL) (4 HOLES) (TO MATCH-17)
.097-.102 (#40 DRILL) (6 HOLES)
CUTOUT AS SHOWN
IML BDN
9/16
IML BDN
-15
BEND R 1/8
A1

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18531	A
SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

LDW280-18531 A

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	↑
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538	A1	
-18550	A1	
-18553	A1	
-18557	A3	↓
LDW280-18558	A5	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — ✱

GAEC EO RELEASE: JK 4/16/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/18/69			4-2-69	4/18/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18531	SEE DWG	B2
550		A2
553		A2
557		A4
558		A6
560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE
REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE
SJB 8-13-69
JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY	PJJ				N		Bauman
DATE	7-29-69			7/29/69	8-2-69		8/14/69 8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

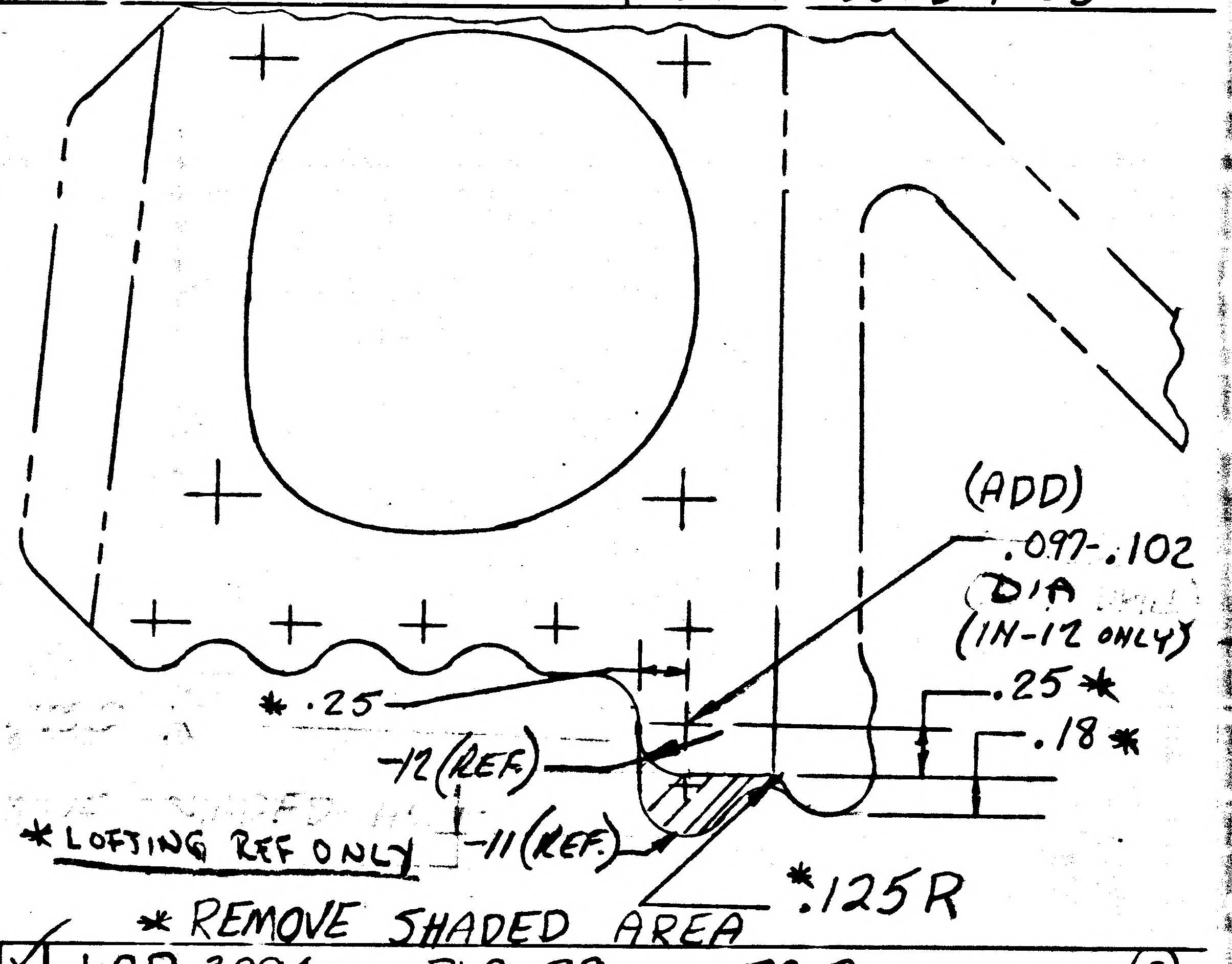
DWG. NO. LDW280-18531		EO NO. B3
CONTROL INFO NO. LDW 280 B 9003		

ADD -12

OPP. OF -11 EXCEPT
AS NOTED
EFF. LM 10 (40) THRU LM 14(44)
N/A LDW280-60791
1 REQD. PER VEH.

IN M/B FOR -13 ADD
REQMTS N/A LDW280-60791
EFF LM 10(40) THRU LM 14(44)
1 REQD PER VEH.

IN M/B FOR -15 & -17
REMOVE LM 10(40) THRU LM 14(44)
REQMTS N/A LDW280-54791



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 89 PG 2 (6)

REASON FOR EO: BRACKET SUPPORT FOR EQUIP.S LINES NEEDED

DESCRIPTION OF EO: ADDED -12. FOR -13 ADDED EFF LM-10(40) THRU LM-14(44). FOR -15 & -17 RESTRICTED EFF TO LM-5(35) THRU LM-9(39) & LTA-11(23) BY REM LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: JK 10/24/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40) THRU	
LM		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-15 -17

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JDK			GH	NM			
DATE	10/23/69			10-23-69	10/23/69		10/24/69	10/24/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET DS ~ TV CONNECTOR SUPPORT	LDW280-18531	B3

11-12-69
ISSUED BY T. COTTER *87222 SECTION VDI GROUP NO. 335 PL 25

01

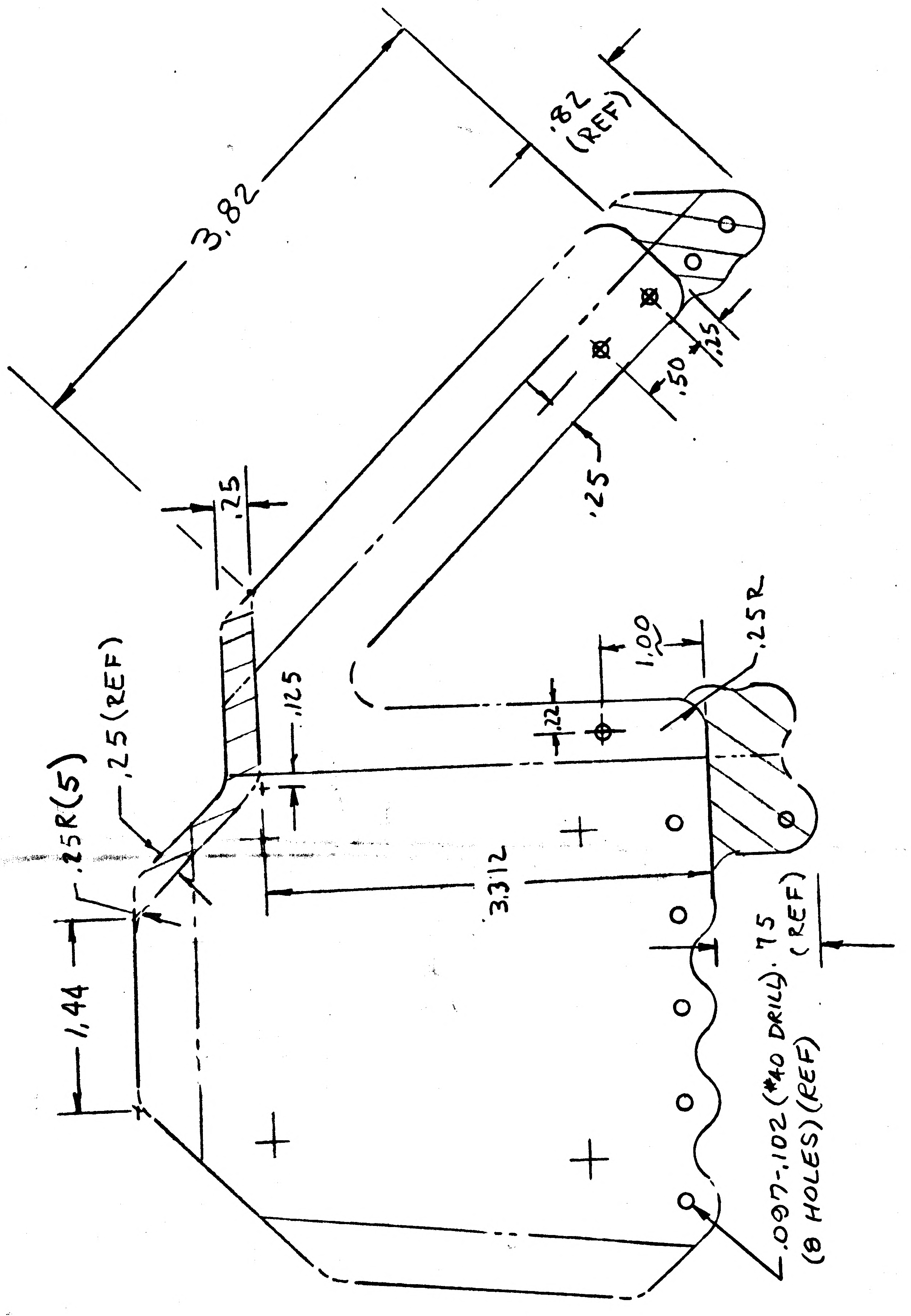
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18531
EO NO. B4
CONTROL INFO NO. LM-2-6025

TRIM -12 AS SHOWN IN SHADED AREA & RELOCATE #40 HOLES (3 PLC'S)



LOFTED DWG. DIMS SHOWN ARE FOR EO PURPOSES ONLY, DO NOT INCORPORATE ON DRAWING.

FOR REWORK BRUSH ALODINE BARE SURFACE PER LSP14-9010.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3994

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH H_2O TANK QUAD IV

DESCRIPTION OF EO: TRIMMED -12

GAEC EO RELEASE: (R) 3-2-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40)	
LM		THRU 14(44)	

DRAWING CHANGE RFQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	APPROVED BY			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				KC				
DATE	3-2-70			2/26/70	2/19/70	2-21-70	3-2-70	2/20/70
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: BRACKET D/S-TV CONNECTOR SUPPORT

DRAWING NO.: LDW280-18531

EO NO.: B4

ISSUED BY LIAISON DON RAGAS SECTION VDI GROUP NO. 335 PL 2

01
NAS 9-1100

LDW280-18533

LEM

LEM	LDW280-[illegible]		2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / SHEET SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18533-19			
LEM	LDW280-[illegible]		1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / SHEET SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18533-15			
LEM	LDW280-18537		1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / SHEET SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18533-11-3647			

WORK PKG FUNCTION NO. [illegible]

REV STATUS FOR DESCRIPTION OF REVISED SUBJECT SH

SHEET 1 [illegible] 200830

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS—DECIMALS—ANGLES

DRG TYPE AUTH

DETAIL SPEC REQUIREMENT

LAST ENGRG CHANGE

LAST ENGRG CHANGE

CONTRACT NO. NAS 9-1100

DRAWN BY [illegible] RELIABILITY

LAYOUT BY ANDERSON

CHECKED [illegible]

LINE ITEM

DOCUMENTATION TYPE [illegible]

GRUMMAN AIRCRAFT ENGRG CORP

BETHPAGE L.I. NEW YORK

ANGLE

DESCENT STAGE—BATTERY INSTL—LOWER DECK STOWAGE—VENT—[illegible] AND BEAM PL

LAST SECT LTR USED

LAST DASH NO. USED 1-19

GRUMMAN REF

FORM NO.

PROJ ENGR

REL GROUP

SIZE B | CODE IDENT NO. 26512 | LDW280-18533

SCALE NONE | SHEET 1 OF 3

CCR 4-22-68

01

NAS 9-1100

	PART NO.		CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	MAT SPEC		STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18533-[illegible]			ANGLE	AL ALLOY SH	QQ-A-250/12 7075		.063 X 1.5 X 3	7a	55	
	LDW280-18533-7			SUPPORT	AL ALLOY SH	QQ-A-250/12 7075		.063 X 1.5 X 3	7a	55	
	LDW280-18533-5			ANGLE	AL ALLOY SH	QQ-A-250/12 7075		.063 X 1.5 X 3	7a	55	
	LDW280-18533-3			ANGLE	AL ALLOY SH	QQ-A-250/12 7075		.063 X 1.5 X 6	7a	55	
	LDW280-18533-1			ANGLE	AL ALLOY SH	QQ-A-250/12 7075		.063 X 1.5 X 6	7a	55	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						55	ANODIZE	LSP 4-8030
						7a	AL ALLOY TEMP	MIL-H-6088

IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGINEERING CORP. BETHPAGE L.I. NEW YORK

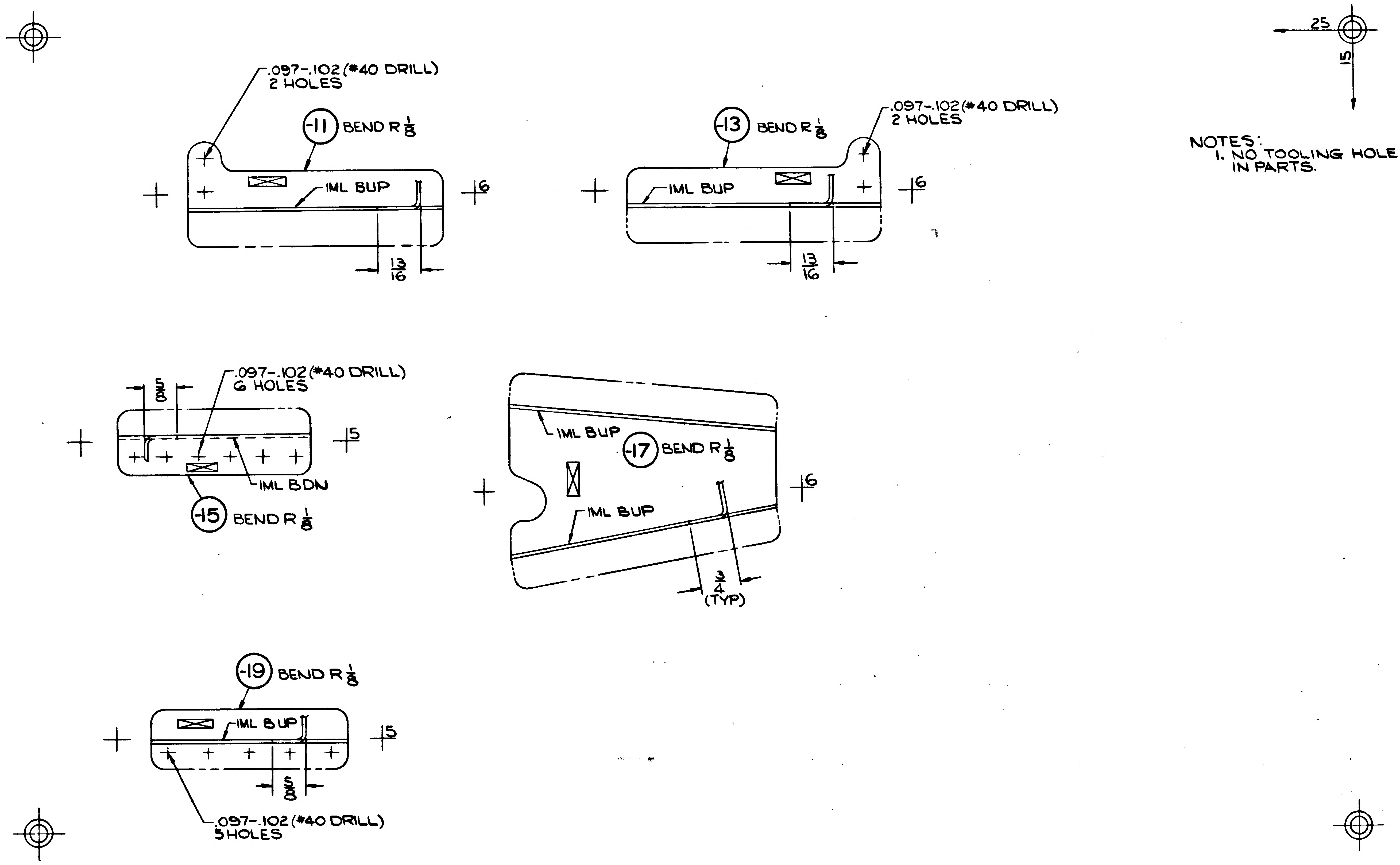
SIZE	CODE IDENT NO.	
B	26512	LDW280-18533

SCALE NONE SHEET 2 OF [illegible]

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



.097-.102 (#40 DRILL) 2 HOLES
-11 BEND R 1/8
IML BUP
6
13/16
.097-.102 (#40 DRILL) 2 HOLES
-13 BEND R 1/8
IML BUP
6
13/16
25
15
.097-.102 (#40 DRILL) 6 HOLES
5/8
IML BDN
-15 BEND R 1/8
5
IML BUP
-17 BEND R 1/8
IML BUP
6
3/4 (TYP)
-19 BEND R 1/8
IML BUP
5
5/8
.097-.102 (#40 DRILL) 5 HOLES

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18533
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

LDW280-18533

NAS 9-1100

LDW280-18534

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 111	LDW280-25537	LTA-8(18)	1 EA
PART NO. LDW280-18534-11,-13&-15		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
		PRIM NO.	X(001)		
LAST DASH NO. USED	-15	207	MP-16	6/4/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 1021-5 ck

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J. AVILES 4-25-68	RELIABILITY	
LAYOUT BY	J. PLANTE 4-2-68	THERMO	6/Ko 6-3-68
CHECKER WCG	D. FASS-WCG 5/14/68		
GR LEADER	Thorjusen 5/15/68		
VEH. DES. INT.	J. Pusateri 5/15/68		
STRUCTURES	W/S W/H 5/17/68	PROJ ENGR	J. Pusateri 6/1/68
STRUCTURES	W/H for FEB	REL GROUP	G. Marsh 6-3-68
WEIGHTS	J		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE-ELECTRONIC REPLACEABLE ASSY
SUPPORT-COLD RAIL INBD UPPER DECK ATTACHMENT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18534
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 5-22-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18534-15	E	DOUBLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.063X16X65	NONE	88	
		LDW280-18534-13	E	TEE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE*46353 X 2 1/2	NONE	88	
		LDW280-18534-11	E	TEE	AL ALLOY EXTR	QQ-A-200/3	2024-T3511	DIE*46353 X 2 1/2	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

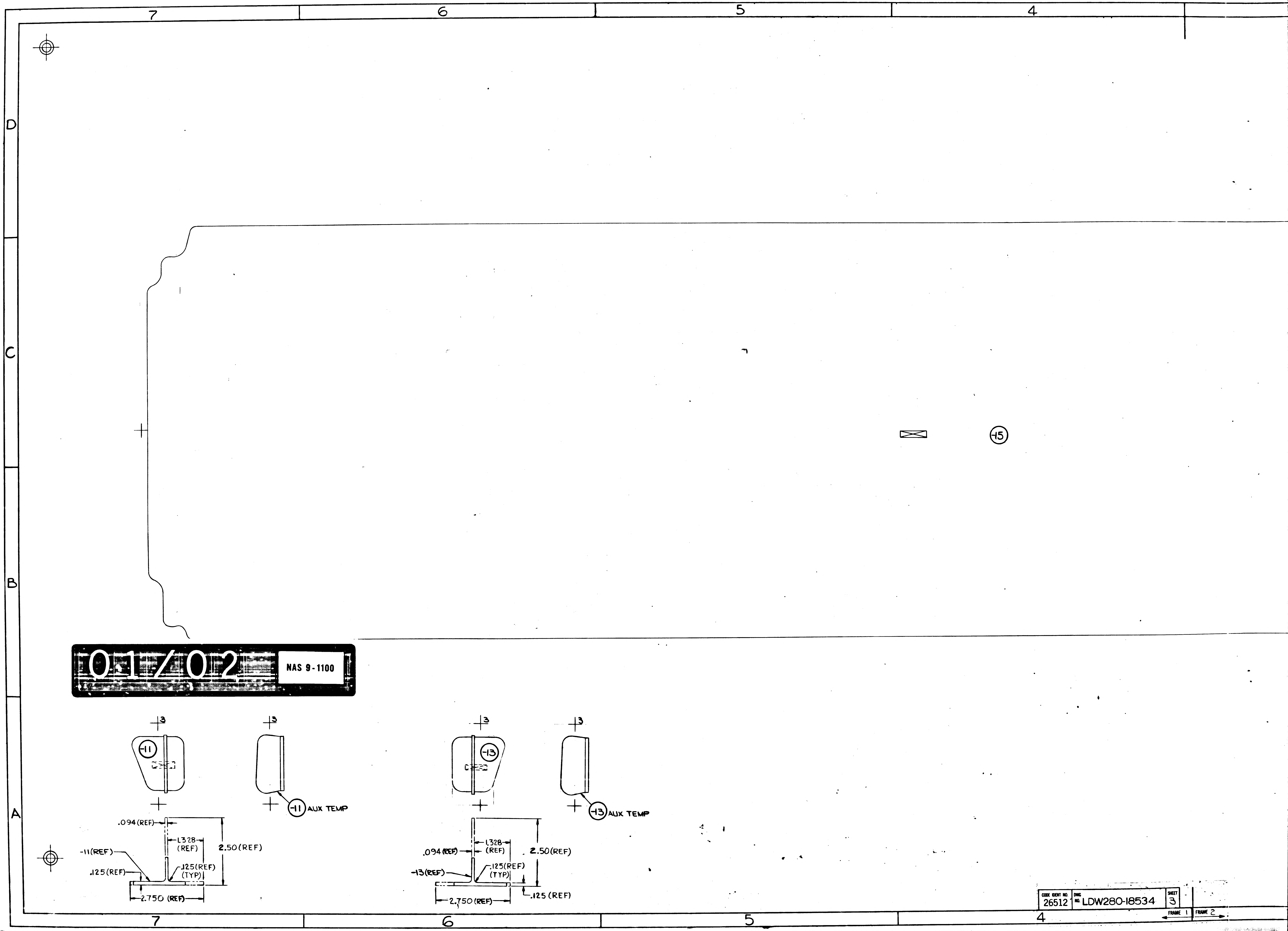
SIZE B
CODE IDENT NO. 26512
LDW280-18534
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01 6

NAS 9-1100

01/02 NAS 9-1100



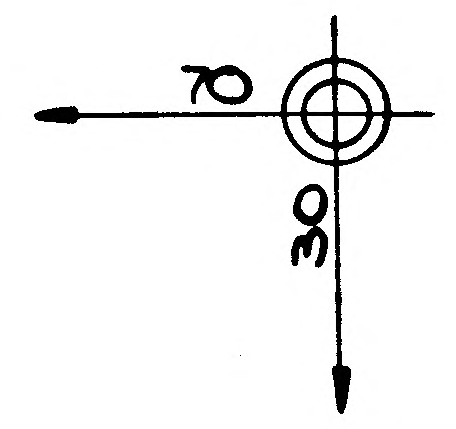
7
6
5
4
D
C
B
A
-15
3
-11
3
-11 AUX TEMP
3
-13
3
-13 AUX TEMP
.094 (REF)
1.328 (REF)
2.50 (REF)
-11 (REF)
.125 (REF)
.125 (REF) (TYP)
2.750 (REF)
.094 (REF)
1.328 (REF)
2.50 (REF)
-13 (REF)
.125 (REF) (TYP)
.125 (REF)
2.750 (REF)
FRAME 1
FRAME 2

CODE IDENT NO. 26512
DWG NO. LDW280-18534
SHEET 3

OVERLAY OK
[illegible]

TRAN. O.K.
T.S. 4-24-68

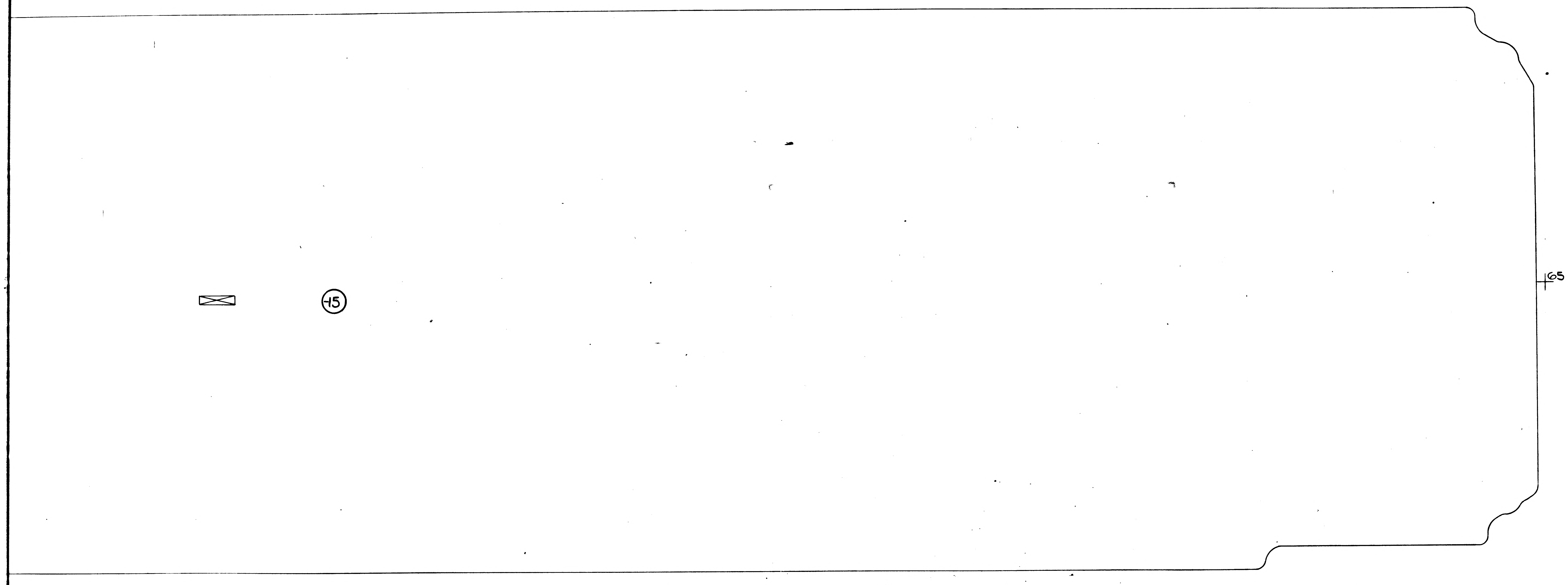
4 3 2 1



SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

ENG 771.2 4-67

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-18534
SCALE FULL		SHEET 3.00

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18534	3

FRAME 1 FRAME 2

4 3 2

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18534
EO NO. A1
CONTROL INFO NO. LM-2-4780

IN B/M

FOR -11 & -13
UNDER STOCK SIZE
WAS
DIE*46353 X 2 1/2
S/B
DIE#46352 X 2 1/2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	

REASON FOR EO: INCORRECT DIE CALLOUT DWG CORRECTION. DIE NONEXISTANT.

DESCRIPTION OF EO: FOR -11 & -13 DIE*46352 X 2 1/2 WAS DIE*46353 X 2 1/2

GAEC EO RELEASE (2) S/C

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQ'D SCRAP

APPROVED BY		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
				2				Grumman
DATE	6/22/68				6/11/68	6/11/68	6/12/68	6-14-68
	VDI							

P	DRAWING TITLE	DRAWING NO	EO NO.
E	TEE D/S ELEC REPLACEABLE ASSY SUPPT COLD RAIL INBD UP DECK	LDW280-18534	A1

ISSUED BY LIAISON John J. BLASE SECTION VDI GROUP NO 280 PL 25

01

NAS 9-1100

LDW280-18538

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53503	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM		LM-6(36)	1
LFM 107		LM-5(35)	1
LFM 107		LM-4(34)	1
LFM 107	LDW280-53503	LM-3(33)	1
PART NO. LDW280-18538-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54531	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM		LM-6(36)	1
LFM 107		LM-5(35)	1
LFM 107	LDW280-54531	LM-4(34)	1
LFM 107	LDW280-52571	LM-3(33)	1
PART NO. LDW280-18538-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53503	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
LM		LM-6(36)	2
LFM 107		LM-5(35)	2
LFM 107		LM-4(34)	2
LFM 107	LDW280-53503	LM-3(33)	2
PART NO. LDW280-18538-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207 | SK(001) | MP-16

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2567

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R. NISBET 5-15-68	THERMO	Thorson 5-20-68
LAYOUT BY	F. LANZARO 5-21-68		
CHECKED BY	5-20-68		
GR LEADER	Thoynsen 5-21-68		
STRUCTURES	NM 5/23/68		
STRUCTURES	5/24	PROJ ENGR	Cusater
WEIGHTS		REL GROUP	Tagliavia
VD1	5/23/68		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE UPPER DECK
FITH

SIZE B | CODE IDENT NO. 26512 | LDW280-18538
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR. 5-24-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18538-15	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X4X4	NONE	88	
		LDW280-18538-13	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X3X4	NONE	88	
		LDW280-18538-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032X4X5	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18538

SCALE NONE | SHEET 2.00

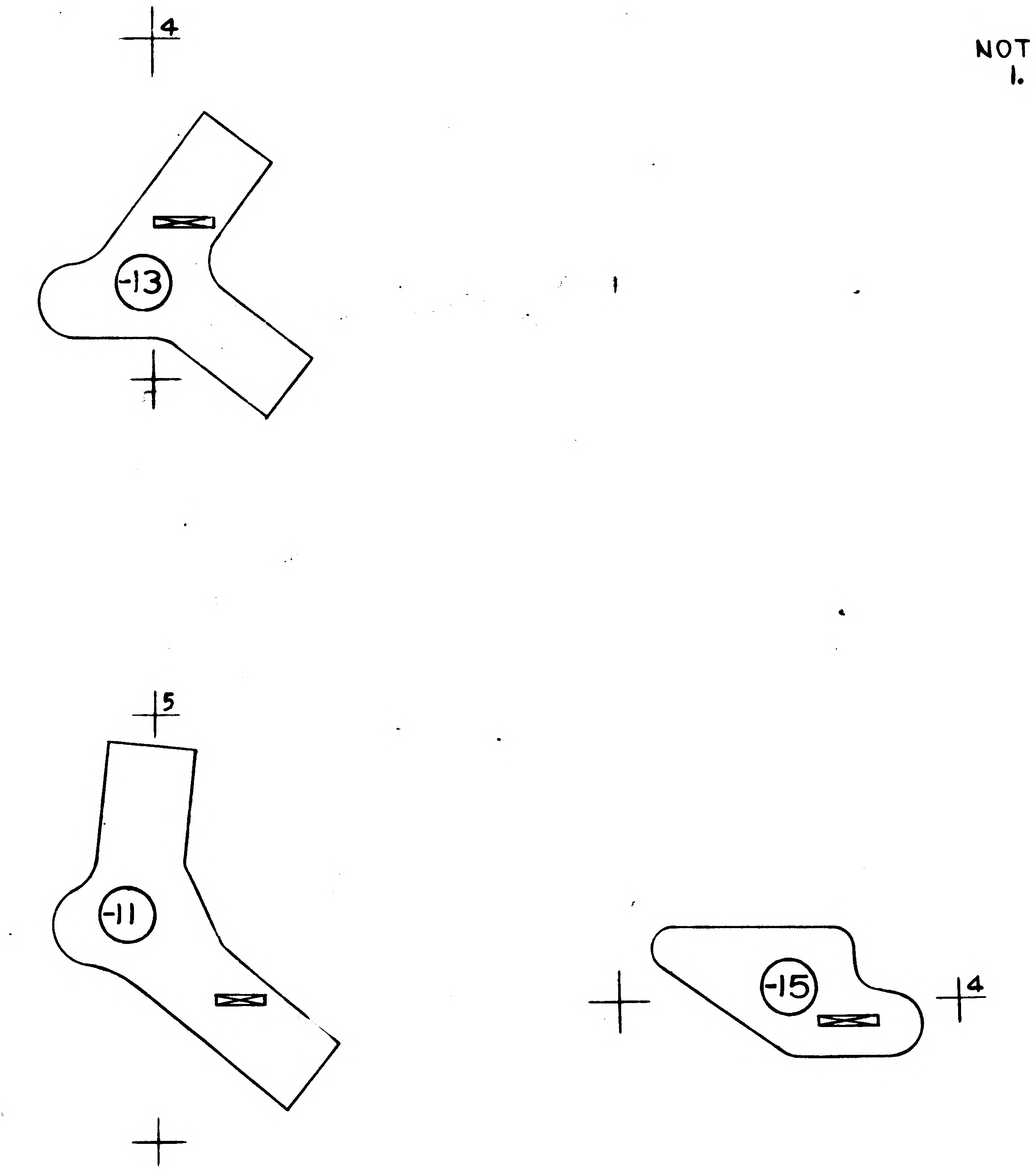
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18538

TRAM OK
T.S. 5-14-68



NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-18538	
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538 ✓	A1	
-18550	A1	
-18553	A1	
-18557	A3	
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGR CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: JK 4/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/16/69			4-2-69	4/8/69		4/4/69	4/14/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1807

CONTROL INFO NO. LDW280..7554

FOR THE DWGS AND DASH NOS.*LISTED BELOW DELETE LM-10(40) THRU LM-14(44) EFF.

	DWG NO. *	TITLE	CHANGE NO.
✓	LDW280P18297-11,-13	SEE DWG	B1
✓	LDW280P18298-11,-15	↑	A6
✓	LDW280-18538-11,-13		A2
	LDW280P18310-15-1,-17-1		B3
	LDW280P18293-11,-13,-15		B2
	LDW280P18336-13-1,-14-1,-15,-16 -17,-18,-19,-20		B2
	LDW280P18309-17,-18,-21,-22, -23,-24,-25,-26	↓ SEE DWG	B2

DETAIL SPEC RE: ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG58

REASON FOR EO: MODIFICATION FOR LARGER PROPELLANT TANKS

DESCRIPTION OF EO: FOR * DELETED LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: (5) JK 1/5/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PBT				w/H			Bauman
DATE	12-23-69			12/22/69	12/23/69		12/2	1/5/70

PRIORITY: C

DRAWING TITLE: SEE DWGS

DRAWING NO.: LEO 280

EO NO.: 1807

CDR 010970

ISSUED BY V.A.CHRISTINA

SECTION VDI X87222

GROUP NO. 335

PL 25

01

NAS 9-1100

LDW280-18540

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM126	LDW280-66813	LTA-8(18)	1EA
PART NO. LDW280-18540-11-13-15-17-19-20-21-23		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-23	207	MP-16-6/14/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD1021-33 CCA498	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A Bishop 6-4-68	WEIGHTS	
LAYOUT BY	D Ragas D.Ragas 6-10-68	RELIABILITY	
CHECKED BY	6-8-68	THERMO	6-11-68
GR LEADER	6-10-68		
VEH DES INT	6/12/68		
STRUCTURES	6/14/68	PROJ ENGR	6/14
STRUCTURES	EB 6/14/68	REL GROUP	

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN-
DESCENT STAGE ~ QUAD II ~
SIDE ~ LOWER HEATER SKIN

SIZE	CODE IDENT NO.	
B	26512	LDW280-18540
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

PKG9 SL2

CDR 061768

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18540-23	E	ZEE	AL ALLOY SH	QQ-A-250/5	CLAD 2024-T3	.012X4X28	NONE	Note 2	6D
		21		CAP				.012X5X12			1C
		-20		ZEE				.012X8X8			1A
		-19		ZEE				.012X8X8			1A
		-17		ZEE				.012X4X28			3C
		-15		SKIN				.012X12X38			3B
		-13		SKIN				.012X11X38			2A
		LDW280-18540-11	E	SKIN	AL ALLOY SH	QQ-A-250/5	CLAD 2024-T3	.012X22X39	NONE	Note 2	6B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

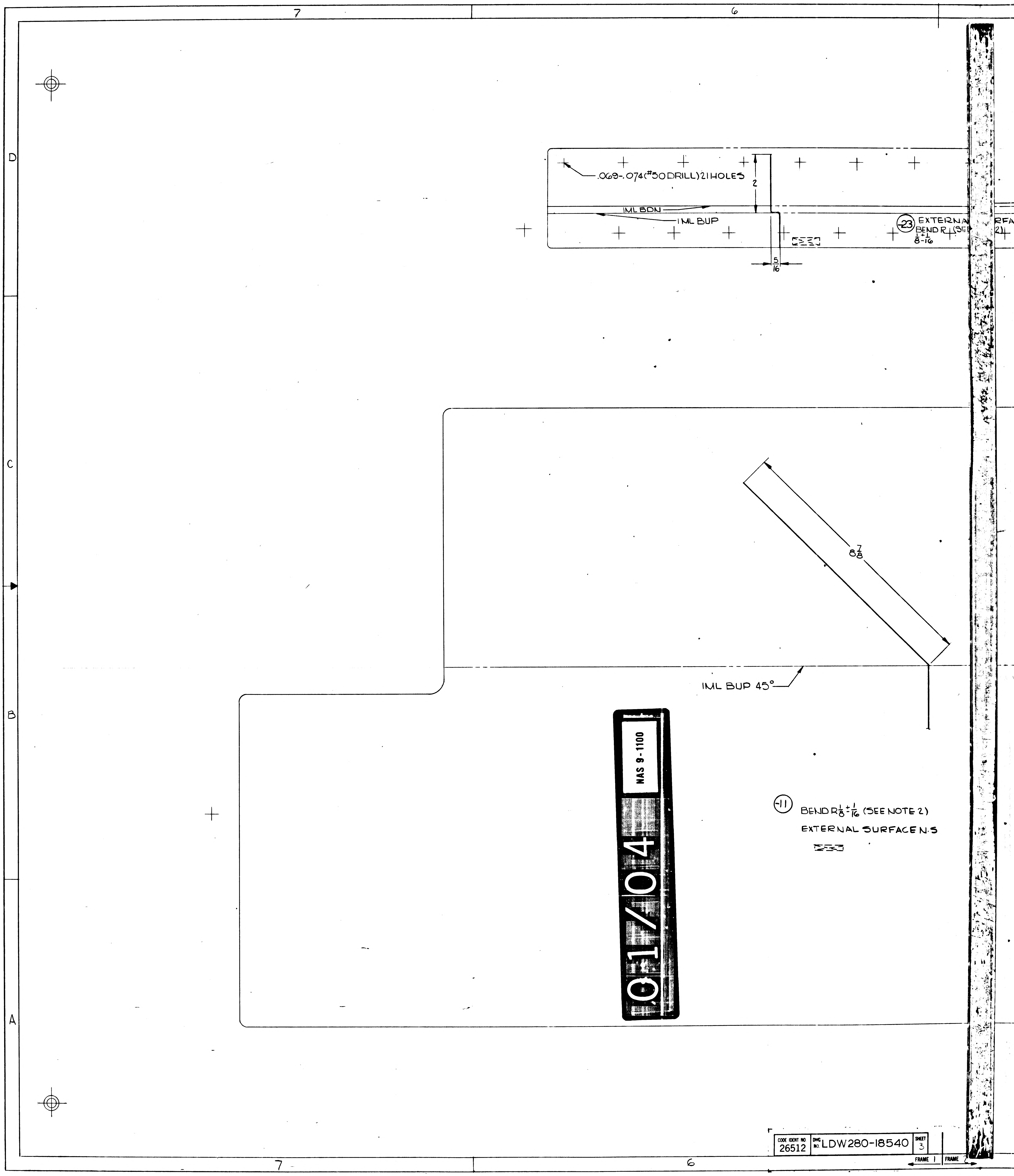
SIZE B
CODE IDENT NO. 26512
LDW280-18540
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

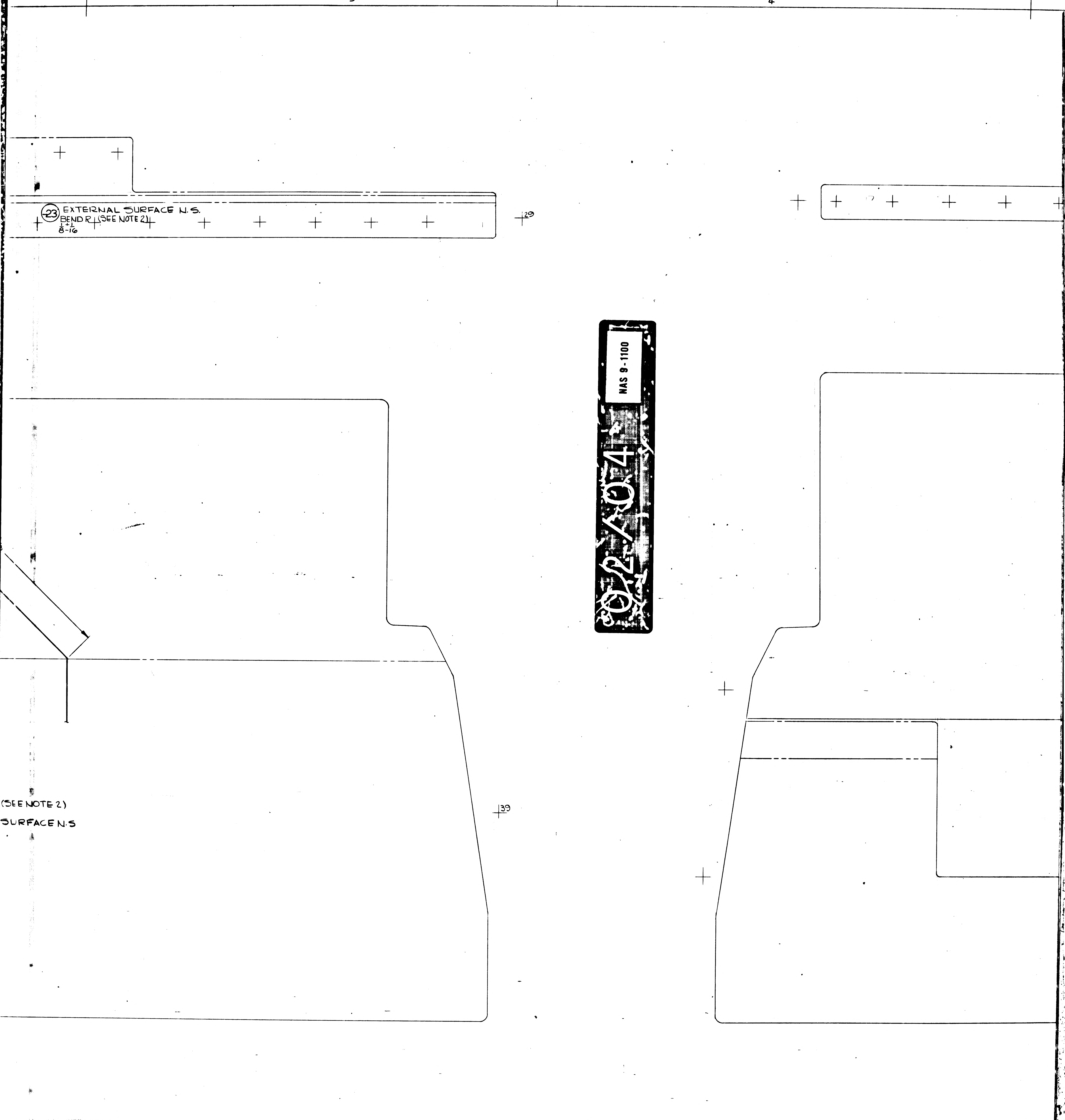
NAS 9-1100

01/04 NAS 9-1100


7
6
D
C
B
A
.069-.074(#50 DRILL) 21 HOLES
2
IML BDN
IML BUP
5/16
-23 EXTERNA RFA
BEND R (SE 2)
$\frac{1}{8} \pm \frac{1}{16}$
$8\frac{7}{8}$
IML BUP 45°
-11 BEND R $\frac{1}{8} \pm \frac{1}{16}$ (SEE NOTE 2)
EXTERNAL SURFACE N.S

CODE IDENT NO 26512 | DWG NO LDW280-18540 | SHEET 3

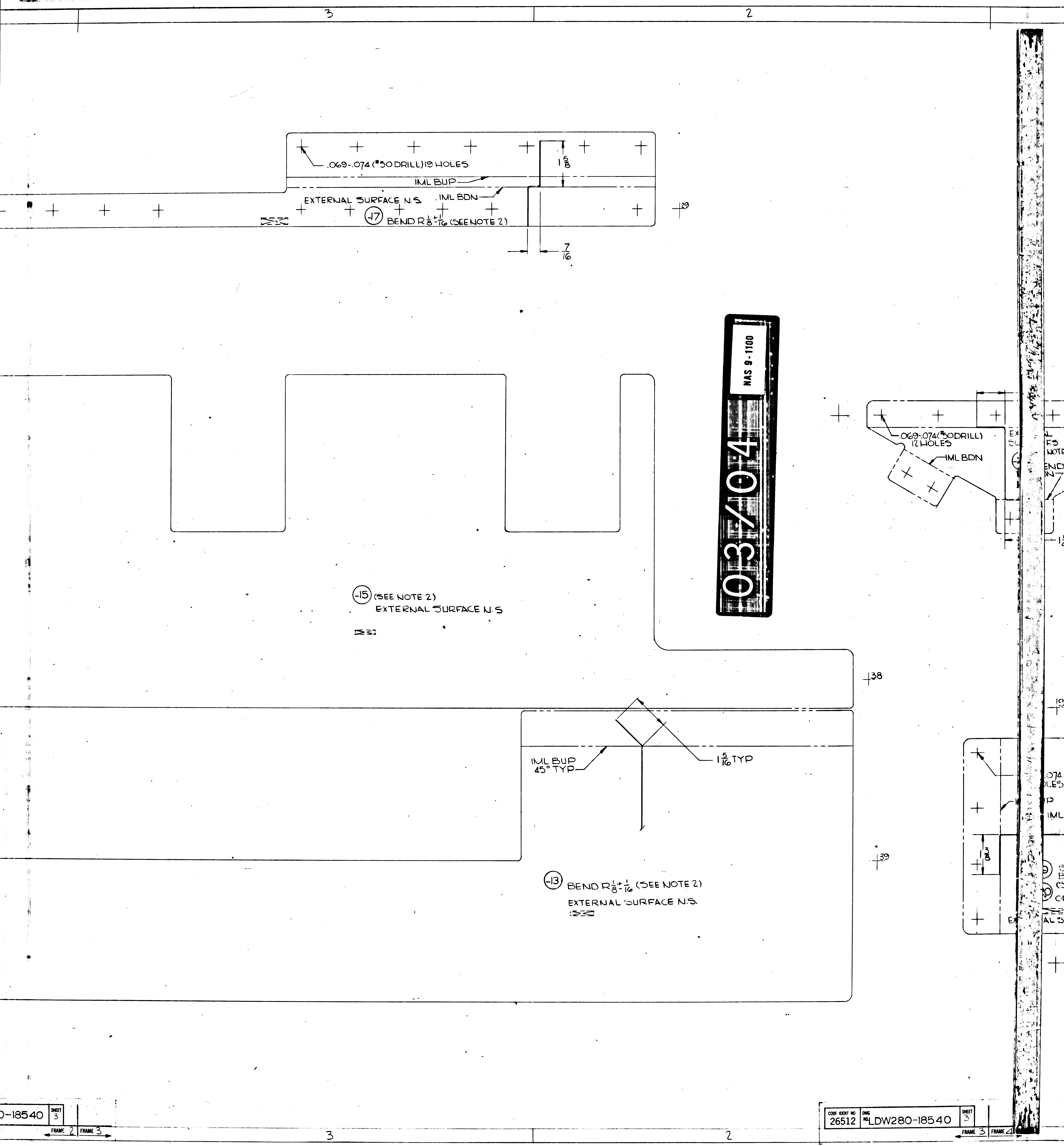
FRAME 1 | FRAME


5
4
(23) EXTERNAL SURFACE N.S.
BEND R $\frac{1}{8}$ $^{+1}_{-16}$ (SEE NOTE 2)
29
39
(SEE NOTE 2)
SURFACE N.S

02/04 NAS 9-1100

0-18540 SHEET 3
FRAME 1 FRAME 2

CODE IDENT NO 26512 DWG NO LDW280-18540 SHEET 3
FRAME 2 FRAME 3


3
2
.069-.074 (#50 DRILL) 18 HOLES
IML BUP
IML BDN
EXTERNAL SURFACE N.S.
-17 BEND R 1/8 +1/16 (SEE NOTE 2)
1 5/8
7/16
29
-15 (SEE NOTE 2)
EXTERNAL SURFACE N.S.
38
IML BUP
45° TYP
1 5/16 TYP
39
-13 BEND R 1/8 +1/16 (SEE NOTE 2)
EXTERNAL SURFACE N.S.
.069-.074 (#50 DRILL)
12 HOLES
IML BDN
1 3/8

03/04

NAS 9-1100

CODE IDENT NO 26512 DWG NO LDW280-18540 SHEET 3

FRAME 3 FRAME 4

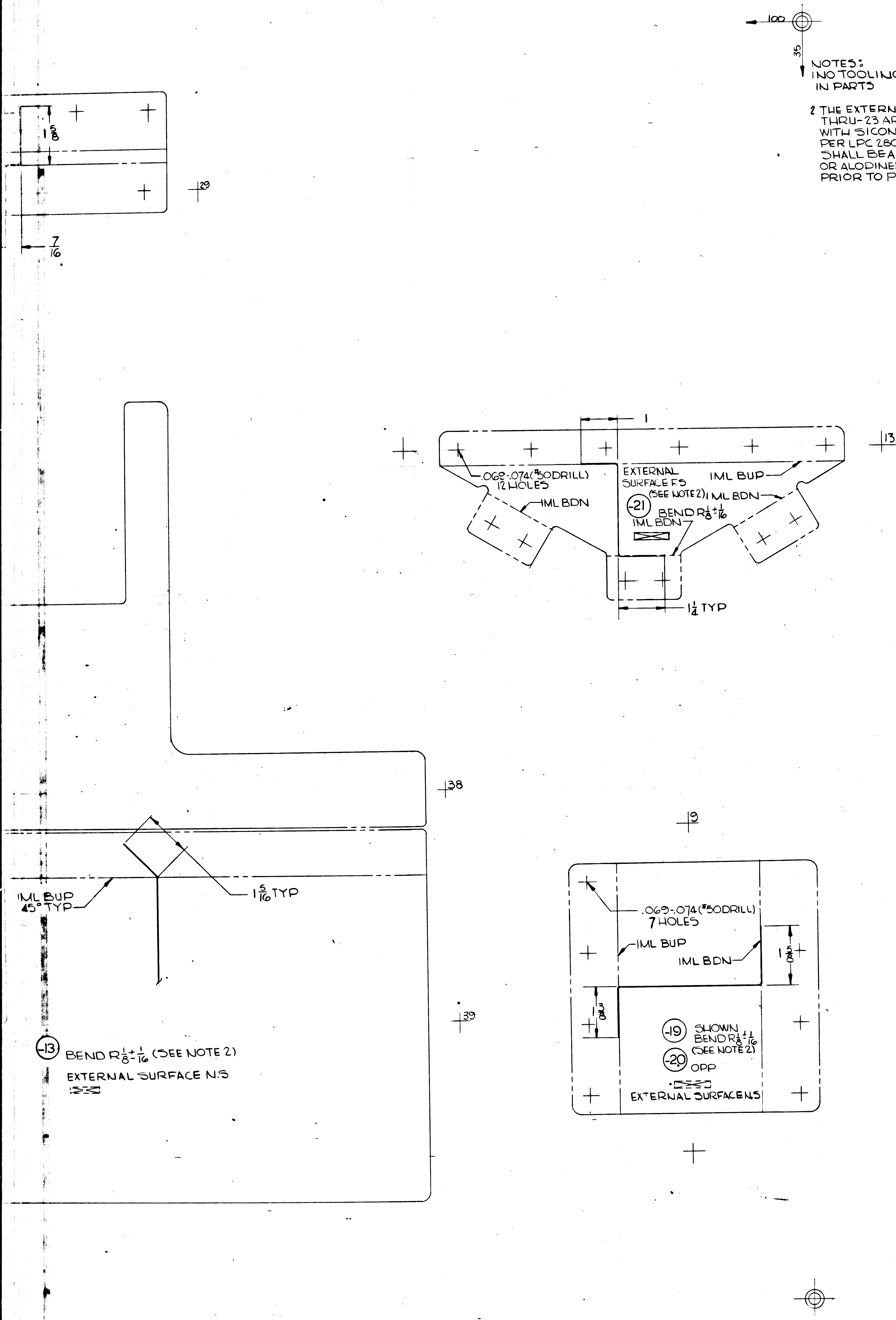
TRANCK
7-3-8-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ [redacted]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 40 x 112
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 x 122)= 36 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 9 SQ FT

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS

2 THE EXTERNAL SURFACES OF -11 THRU -23 ARE TO BE PAINTED WITH SICON, 3X923 BLACK PAINT PER LPC 280-12. THESE PARTS SHALL BE ANODIZED PER LSP14-9030 OR ALODINED PER LSP14-9010 PRIOR TO PAINTING


2
1
100
35
1 5/8
7/16
29
1
13
.069-.074 (#50 DRILL) 12 HOLES
IML BDN
EXTERNAL SURFACE FS (SEE NOTE 2)
-21 BEND R 1/8 + 1/16
IML BDN
IML BUP
IML BDN
1 1/4 TYP
38
IML BUP 45° TYP
1 5/16 TYP
-13 BEND R 1/8 + 1/16 (SEE NOTE 2)
EXTERNAL SURFACE N.S
9
.069-.074 (#50 DRILL) 7 HOLES
IML BUP
IML BDN
1 .05/.03
1 .03/.05
39
-19 SHOWN BEND R 1/8 + 1/16 (SEE NOTE 2)
-20 OPP
EXTERNAL SURFACE NS
D
C
B
A

NAS 9-1100

04/04

LDW280-18540

LDW280-18540

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18540	3

FRAME 3 | FRAME 4

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L. I., NEW YORK

SIZE	CODE IDENT NO.		
	26512	LDW280-18540	
SCALE FULL		SHEET 3.00	

①

FOR PHOTO REPRODUCTION

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18540		EO NO. A1
CONTROL INFO NO. LDW280B 4725		

ON -21

REVISE MARKING CALLOUT:

☒ EXTERIOR SURFACE N.R. SIDE
WAS
EXTERIOR SURFACE FAR SIDE

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1021-33 CCA 498 (PKG 5) (5)

REASON FOR EO
TO AGREE WITH MARKING ON DWG

DESCRIPTION OF EO
ON -21
REVISE CALLOUT EXTERIOR SURFACE "NEARSIDE" WAS "FAR SIDE"

GAEC EO RELEASE ② C JK 7/19/68

MODEL	EFFECTIVITY ~~PROCURING~~ ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EI		
LM	LFM 126	LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	7/16/68	7/16/68		7/16/68	7/16/68		7/16/68	7-19-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S QUAD II SIDE – LWR HEATER SKINS	LDW280-18540	A1

CDR 7/24/68
ISSUED BY VINCENT CHRISTINA X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

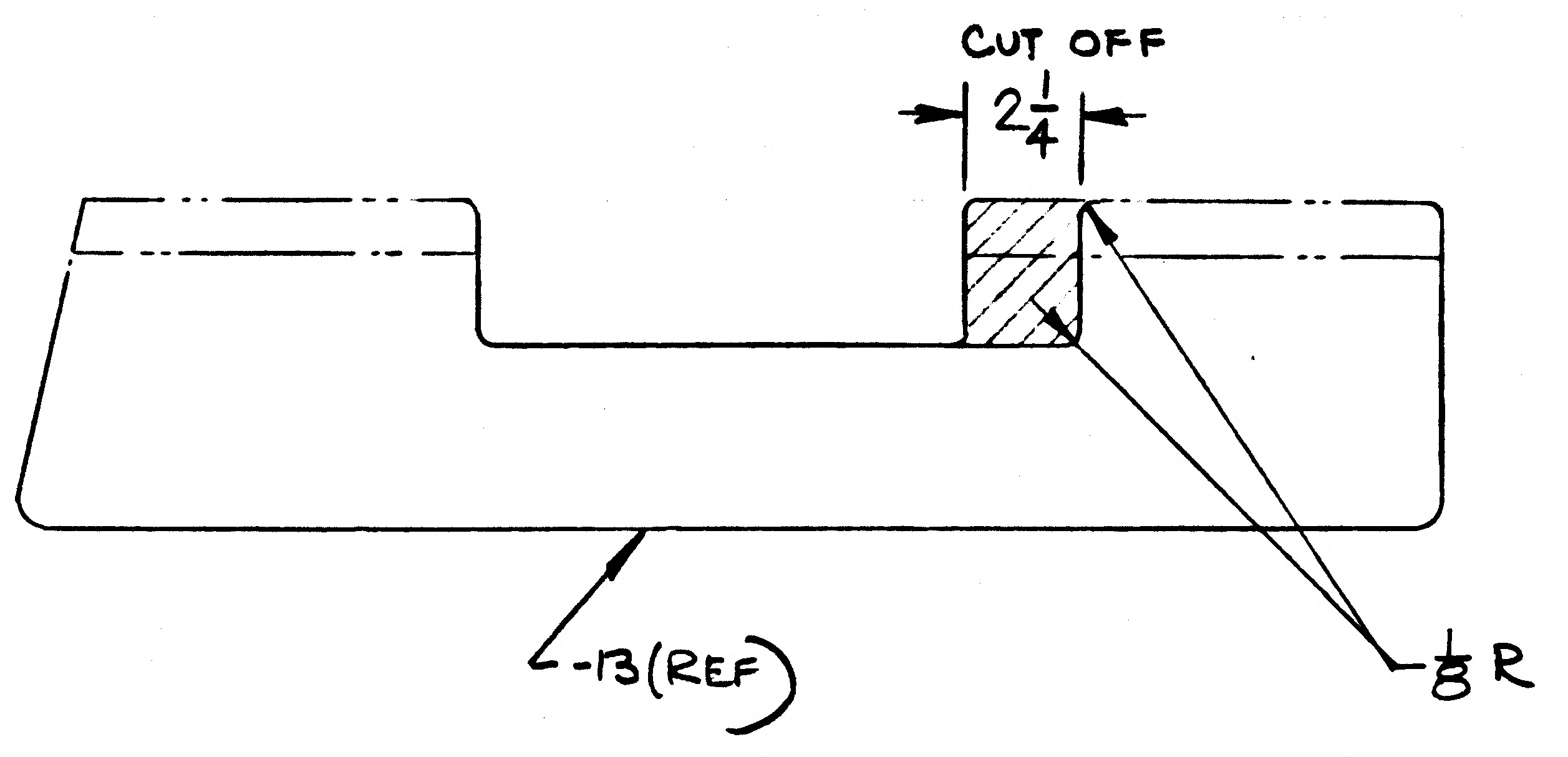
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18540 | EO NO. A2
CONTROL INFO NO. LM52-2401

TRIM OFF SHADED AREA OF -13 AS NOTED

TO BE LOFTED



EO NUMBER WAS A7 John Gard 8/29/68

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33 (52)

REASON FOR EO: ALLOW ACCESS TO RTG

DESCRIPTION OF EO: ON -13 REVISED CUTOUT

GAEC EO RELEASE: (E) C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	MSC LOG ENGR	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RKW			—	GWP WPB			
DATE	8-20-68	8/27/68		—	8-20-68		8-20-68	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - QUAD II LWR SIDE SKIN HEATER SKIN	LDW280-18540	A2

ISSUED BY G. BARNES / D. RAGAS SECTION VDI GROUP NO. 335 PL 52

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

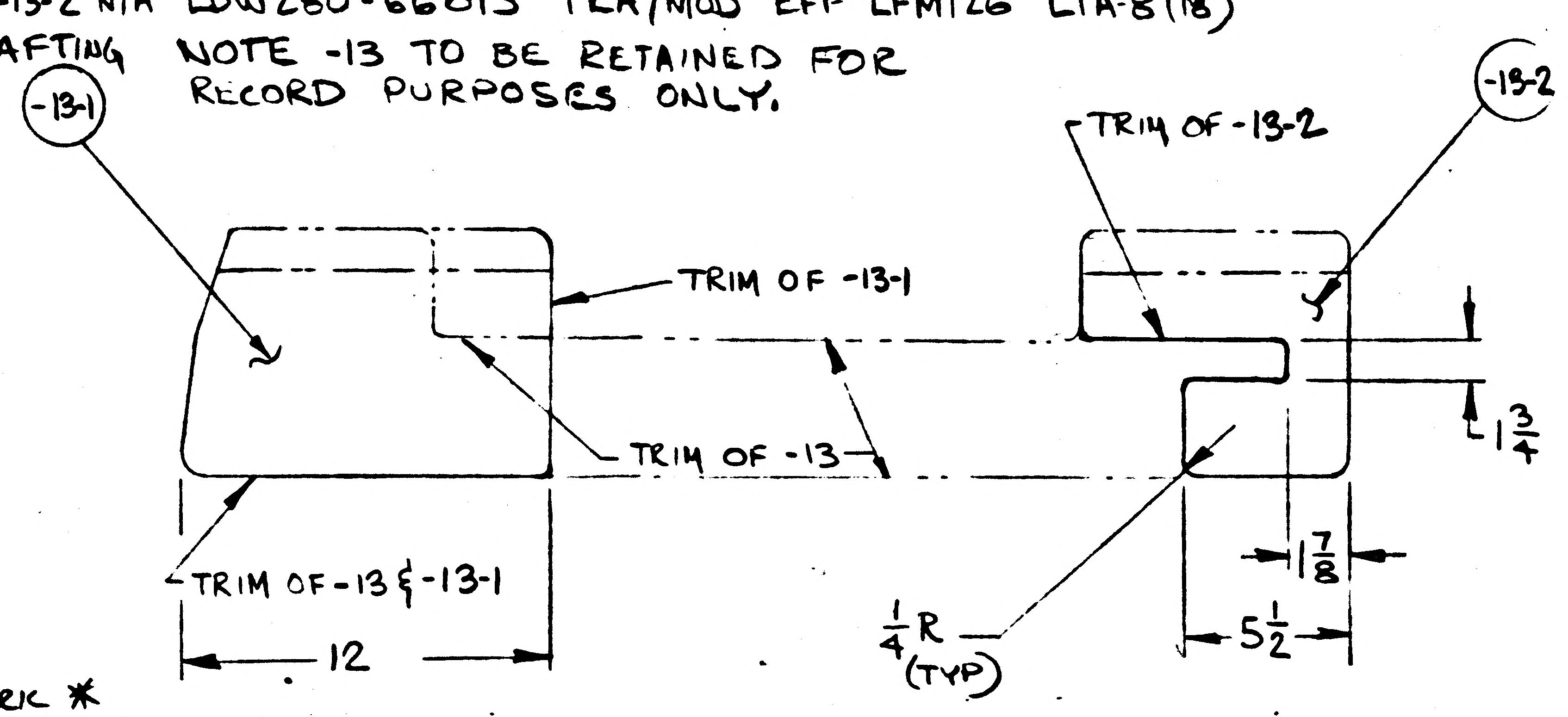
ENG 32.1 REV 3-65

DWG NO	LDW280-18540	EO NO.	A3
CONTROL INFO NO	LM 52-2413		

IN F/D, B/M & MOD/BLK ADD -13-1 & -13-2 IDENT TO -13 EXCEPT AS NOTED
-13-1 & -13-2 N/A LDW280-66813 1 EA/MOD EFF LFM126 LTA-8 (18)

TO BE LOFTED

DRAFTING NOTE -13 TO BE RETAINED FOR RECORD PURPOSES ONLY.



REWORK *
NOTE -13-1 & -13-2 MAY BE MADE BY REWORKING -13, INCLUDE CHANGE NOTED ON EO A2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ALLOW ACCESS TO RTG	ADDED -13-1 & -13-2	

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM	LFM126	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		*	

APPROVED BY								
DATE	9/4/68				8-26-68	8-26-68	8-26-68	
	MSC ENG MGR	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	~~Design ENGRG~~	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	D/S QUAD II SKIN SIDE HEATER SKIN	LDW280-18540	A3

ISSUED BY G. BARNES / P. THORJUSEN X4606 SECTION VDI GROUP NO. 335 PL 52

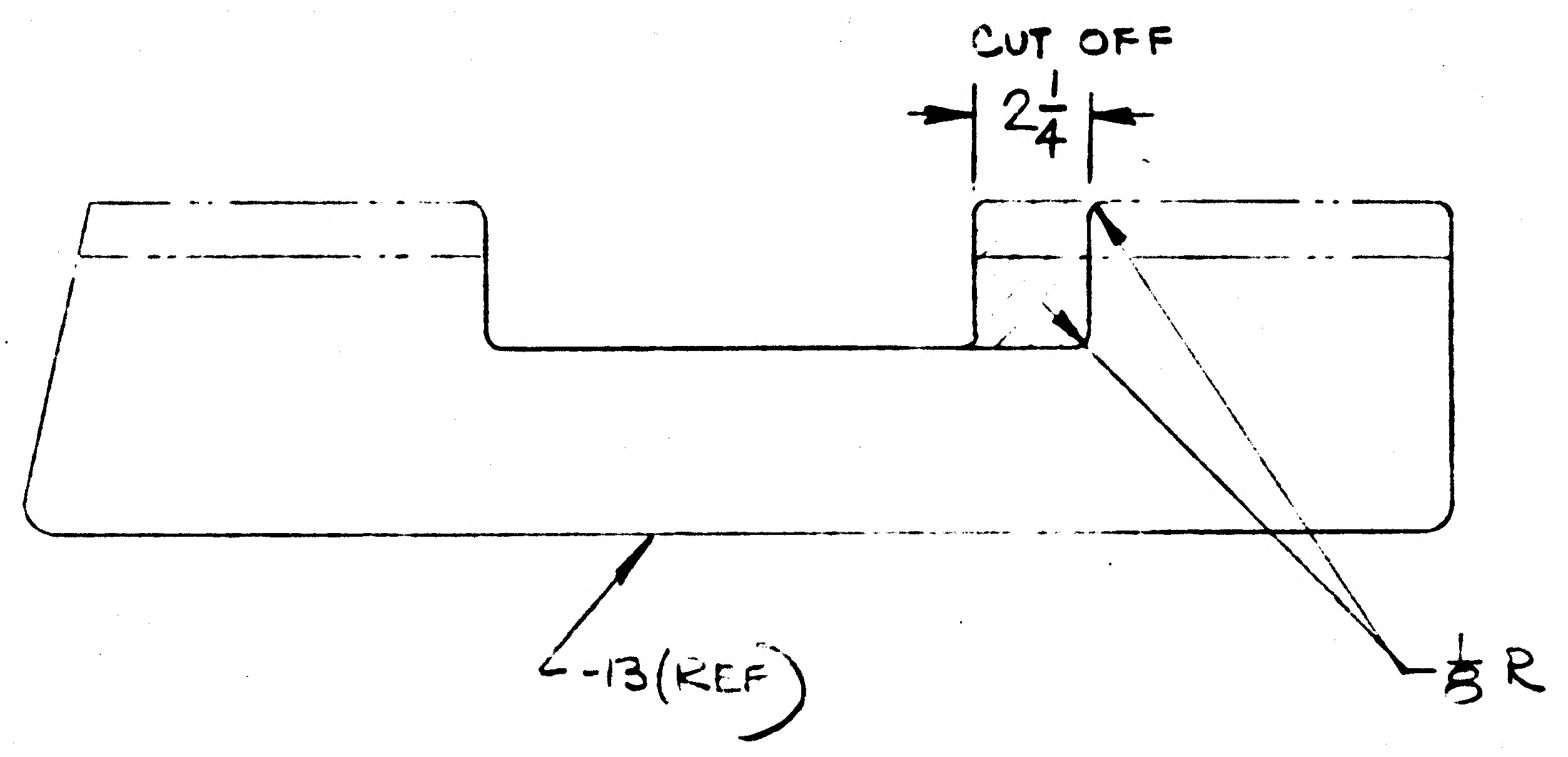
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18540	EO NO. A7
CONTROL INFO NO. LM52-2401	

TRIM OFF SHADED AREA OF -13 AS NOTED

TO BE LOFTED



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ALLOW ACCESS TO RTG	ON -13 REVISED CUTOUT	

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	DKW				WPB			
✓		✓		DATE	8-20-68				8-20-68		8-20-68	
REVISE DWG	RECORD EO	REWORK	SCRAP		MSC	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - QUAD II SKIN LWR SIDE HEATER SKIN	LDW280-18540	A7

ISSUED BY G. BARNES / D. RAGAS SECTION VDI GROUP NO. 335 PL 52

LDW280-18541

LFM

								LFM126	LDW280-66813	LTA-8(18)	1EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-18541-11-13 -15-17-19-21		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00	4.00	5.00	6.00	7.00
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1021-33, CCA 498

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A Bishop 6-4-68	WEIGHTS	
LAYOUT BY	D Ragas DR 6-11-68	RELIABILITY	
CHECKED BY	6-10-68	THERMO	6-13-68
GR LEADER	6-11-68		
VEH DES INT	6/14/68		
STRUCTURES	6/14/68	PROJ ENGR	6/14/68
STRUCTURES	6/14/68	REL GROUP	6-14-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN-
DESCENT STAGE~QUAD II~
SIDE AND LOWER HEATER SKIN

SIZE B | CODE IDENT NO. 26512 | LDW280-18541

SCALE NONE | SHEET 1.00 OF 7

ENG 77.1 12-65

LX69 ~~6-25-68~~

CDR 061768

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18541-21	E	SKIN		AL ALLOY SH	QQ-A-250/5	2024-T3	.012X16X32	NONE	Note 2	17B
		-19	↕	↕	↕	↕	↕	.012X39X82	NONE	Note 3	28B
		-17						.012X39X70	NONE	Note 2	21B
		-15						.012X18X72	↕	↕	5G
		-13						.012X32X83			13B
		LDW280-18541-11	E	SKIN	AL ALLOY SH	QQ-A-250/5	2024-T3	.012X43X85	NONE	Note 2	4C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18541

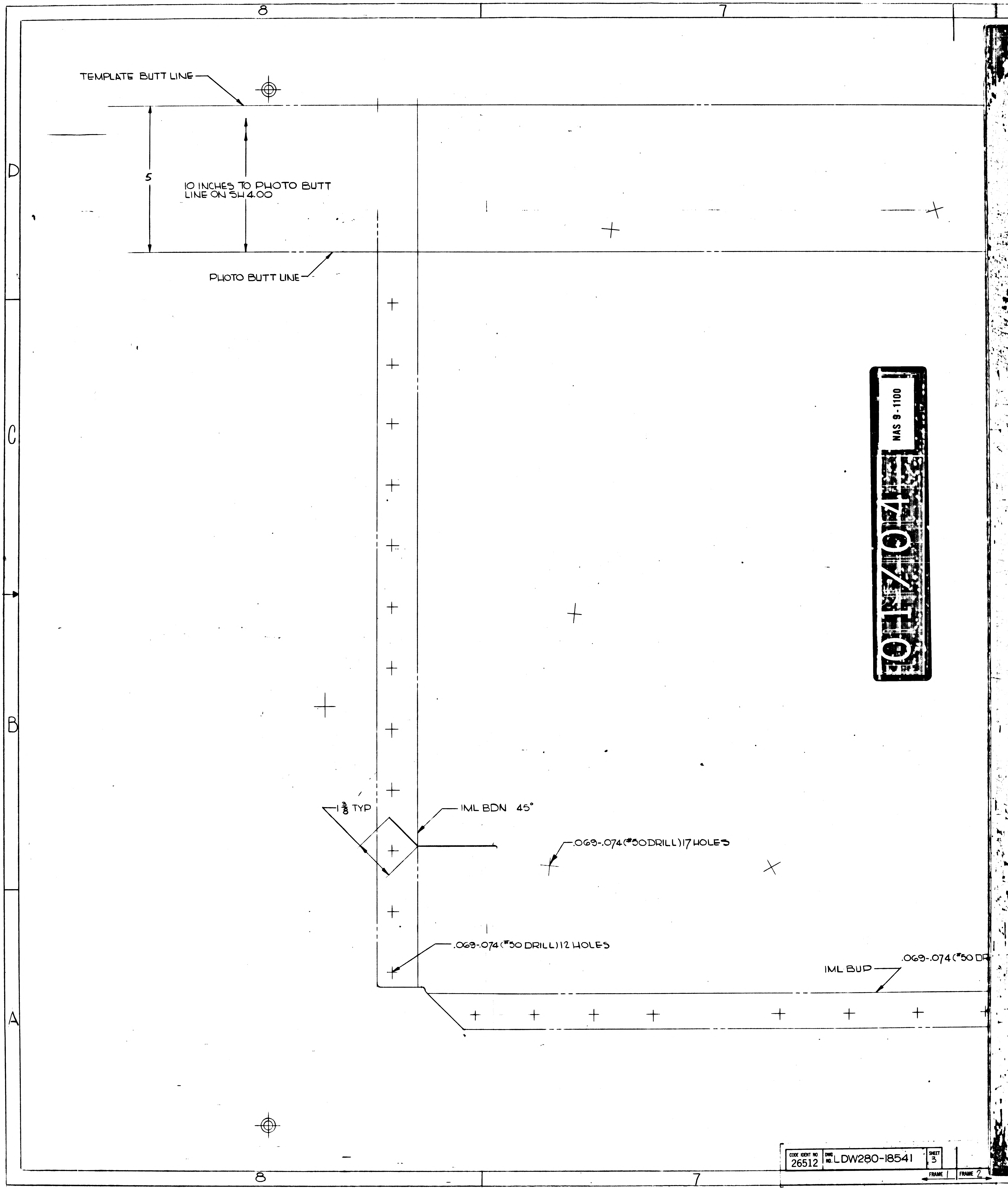
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

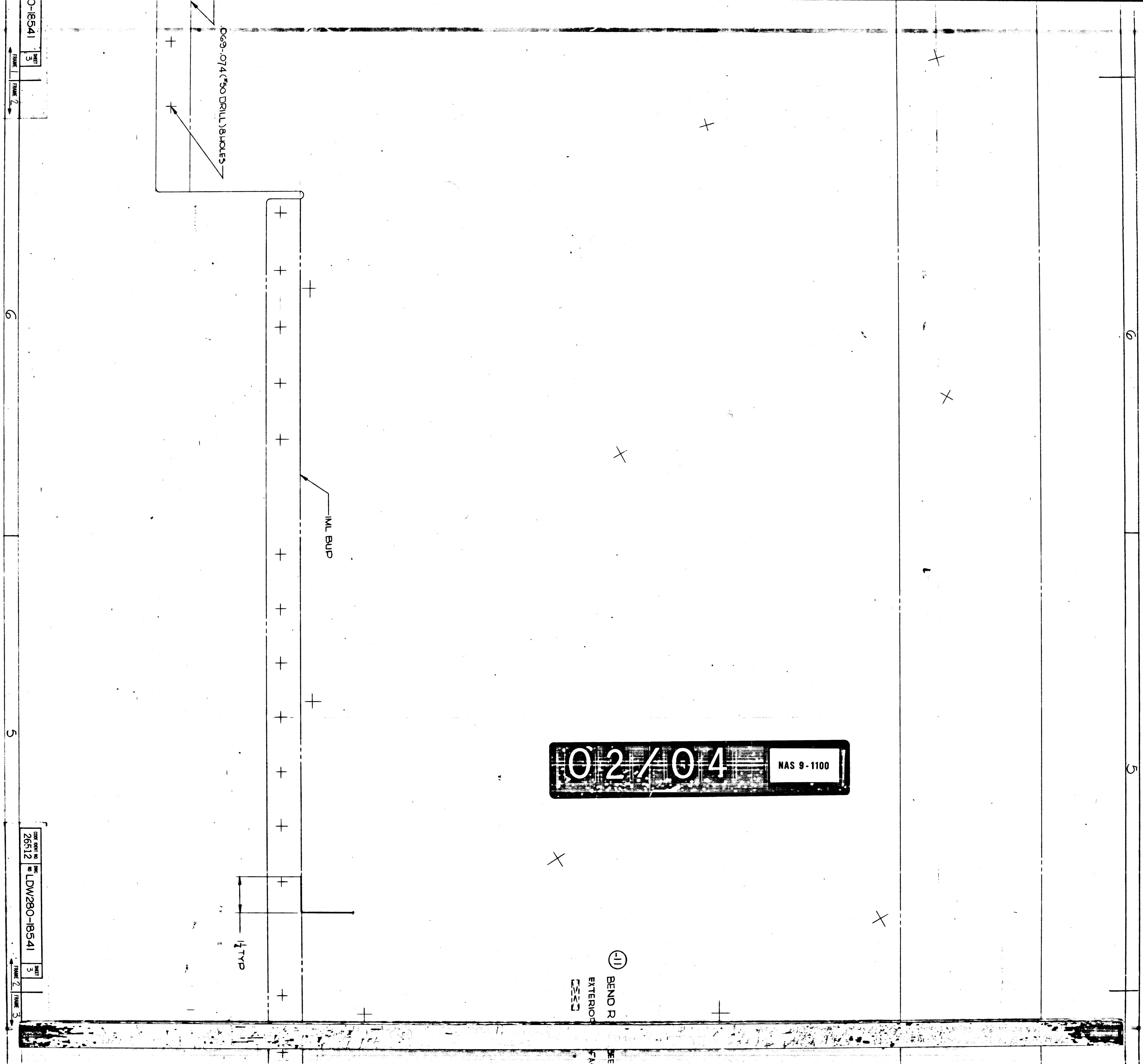
01

NAS 9-1100

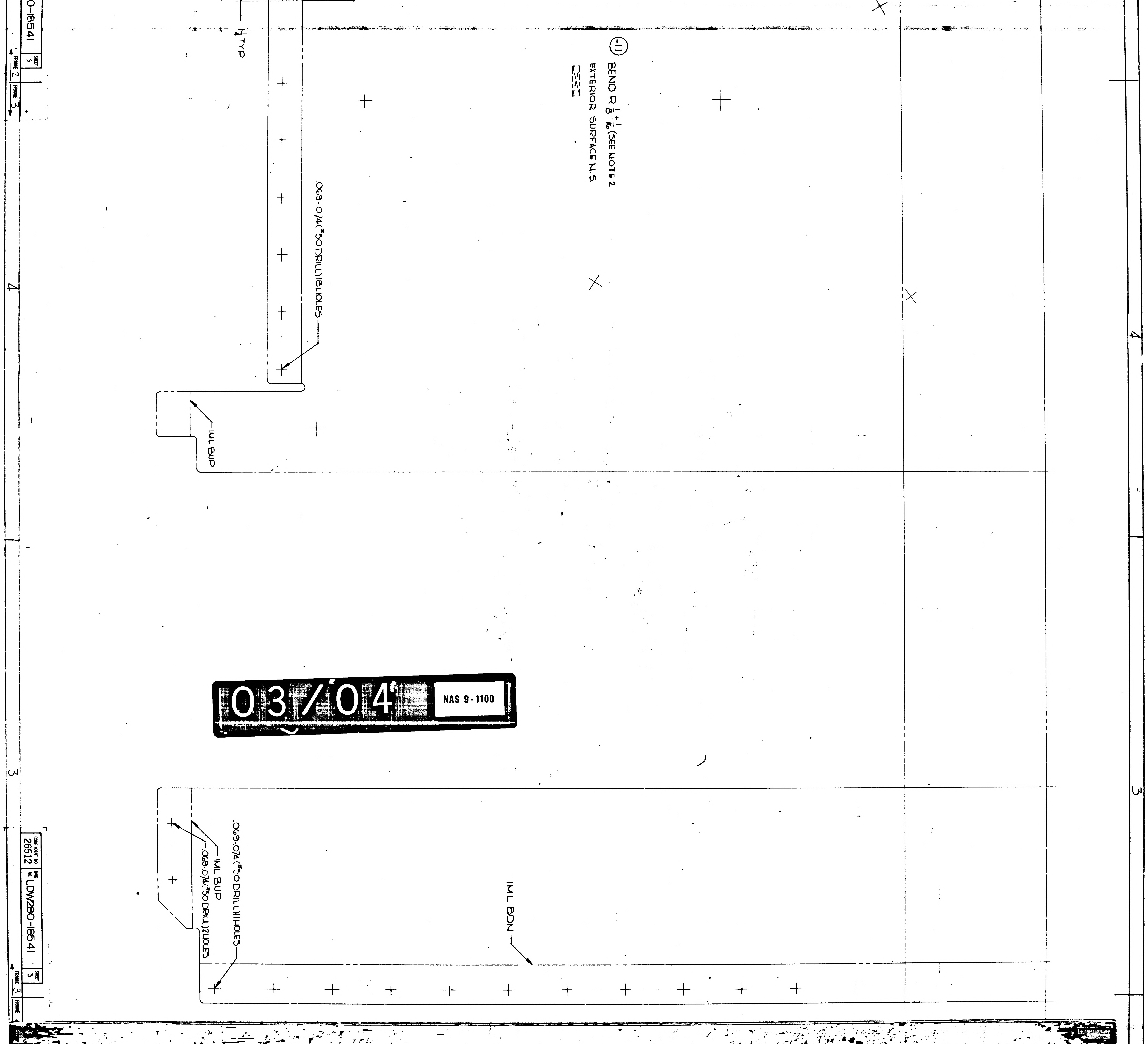

8
7
D
C
B
A
TEMPLATE BUTT LINE
5
10 INCHES TO PHOTO BUTT LINE ON SH 4.00
PHOTO BUTT LINE
1 3/8 TYP
IML BDN 45°
.069-.074(#50 DRILL)17 HOLES
.069-.074(#50 DRILL)12 HOLES
IML BUP
.069-.074(#50 DR
01/04
NAS 9-1100
8
7

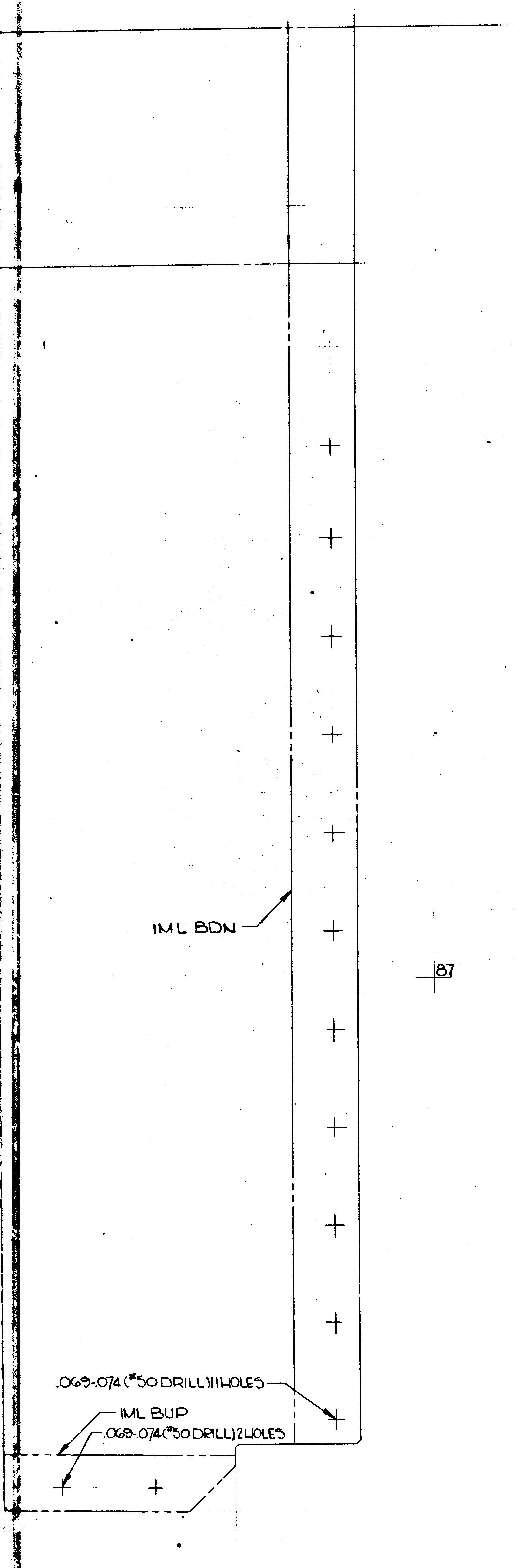
CODE IDENT NO 26512 | DWG NO. LDW280-18541 | SHEET 3

FRAME 1 | FRAME 2


.069-.074 (#50 DRILL) 8 HOLES
IML BUP
1/4 TYP
-11
BEND R
EXTERIOR
6
5
CODE IDENT NO 26512
DWG NO LDW280-18541
SHEET 3
FRAME 1
FRAME 2
FRAME 3

02/04 NAS 9-1100


O-18541
SHEET 3
FRAME 2
FRAME 3
$1\frac{1}{4}$ TYP
(-11) BEND R $\frac{1}{8}\pm\frac{1}{16}$ (SEE NOTE 2
EXTERIOR SURFACE N.S.
.069-.074(#50 DRILL)18 HOLES
IML BUP
03/04
NAS 9-1100
.069-.074(#50 DRILL)11 HOLES
IML BUP
.069-.074(#50 DRILL)2 HOLES
IML BDN
CODE IDENT NO. 26512
DWG NO. LDW280-18541
SHEET 3
FRAME 3
FRAME 4
4
3



NOTES

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS

2. THE EXTERNAL SURFACES OF -11 THRU -21 ARE TO BE PAINTED WITH SICON, 3X923 BLACK PAINT PER LPC-280-12 THESE PARTS SHALL BE ANODIZED PER LSP 14-9030 OR ALODINED PER LSP 14-9010 PRIOR TO PAINTING

3. *FINISH PER LDW280-11367 EXCEPT THE EMITTANCE AT 100°F SHALL BE 0.16 ± .03*

100
35

DWG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.032	✓

DWG SIZE 40x118

PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 x 130) = 38 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 9.5 SQ FT

04/04
NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18541	3

FRAME 3 | FRAME 4

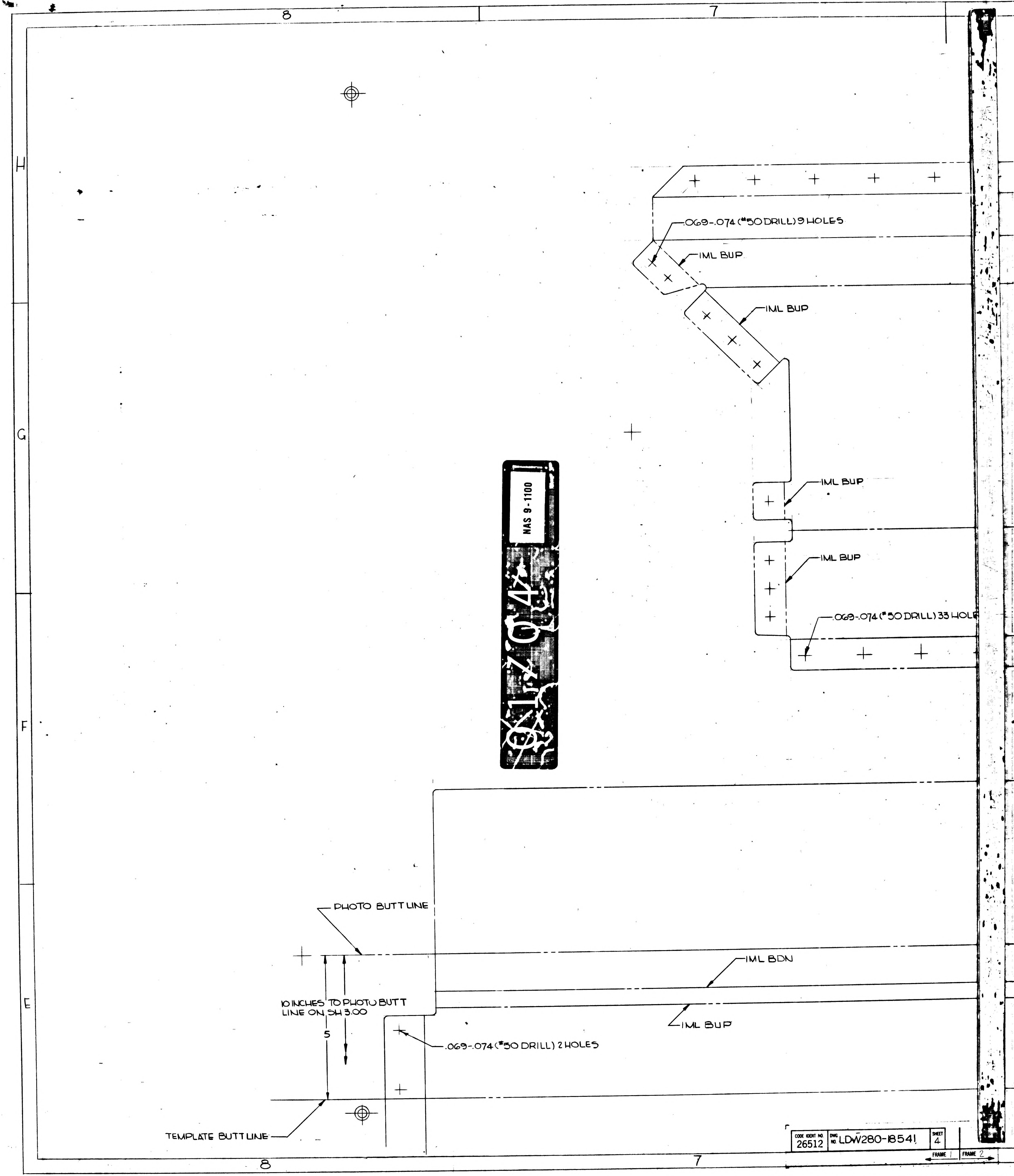
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
K	26512	LDW280-18541
SCALE FULL		SHEET 3 00

FOR PHOTO REPRODUCTION 1

K2
4 FRS

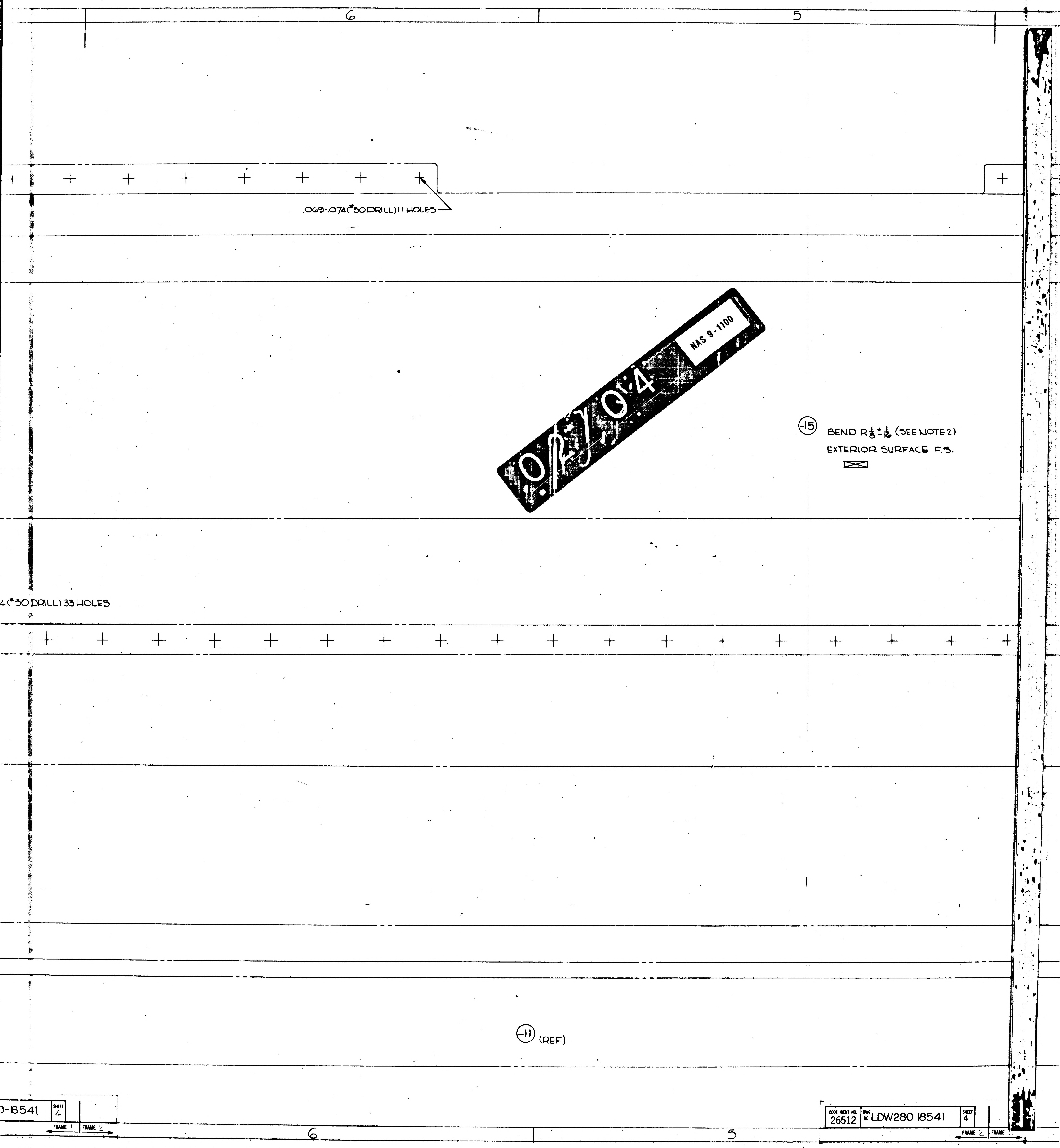
LDW280-18541
LDW280-18541


8
7
H
G
F
E
.069-.074 (#50 DRILL) 9 HOLES
IML BUP
IML BUP
IML BUP
IML BUP
.069-.074 (#50 DRILL) 33 HOL
PHOTO BUTT LINE
IML BDN
10 INCHES TO PHOTO BUTT LINE ON SH 3.00
5
IML BUP
.069-.074 (#50 DRILL) 2 HOLES
TEMPLATE BUTT LINE
8
7

01704 NAS 9-1100

CODE IDENT NO	DWG NO	SHEET
26512	LDW280-18541	4

FRAME 1 FRAME 2

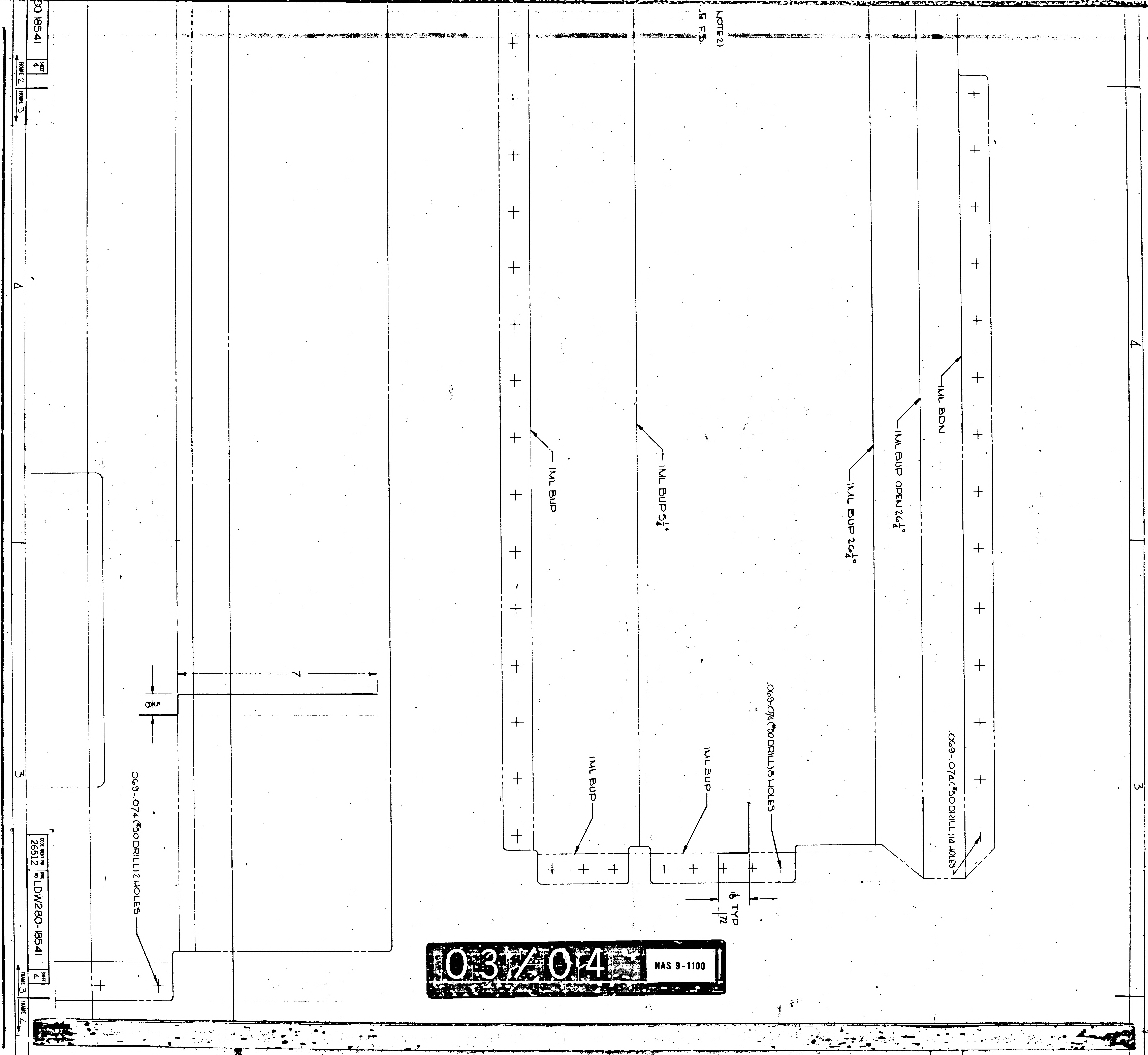

6
5
.069-.074(#30 DRILL) 11 HOLES
-15
BEND R 1/8 ± 1/16 (SEE NOTE 2)
EXTERIOR SURFACE F.S.
4(#30 DRILL) 33 HOLES
-11
(REF)
6
5
FRAME 1
FRAME 2
FRAME 2
FRAME

02104

NAS 9-1100

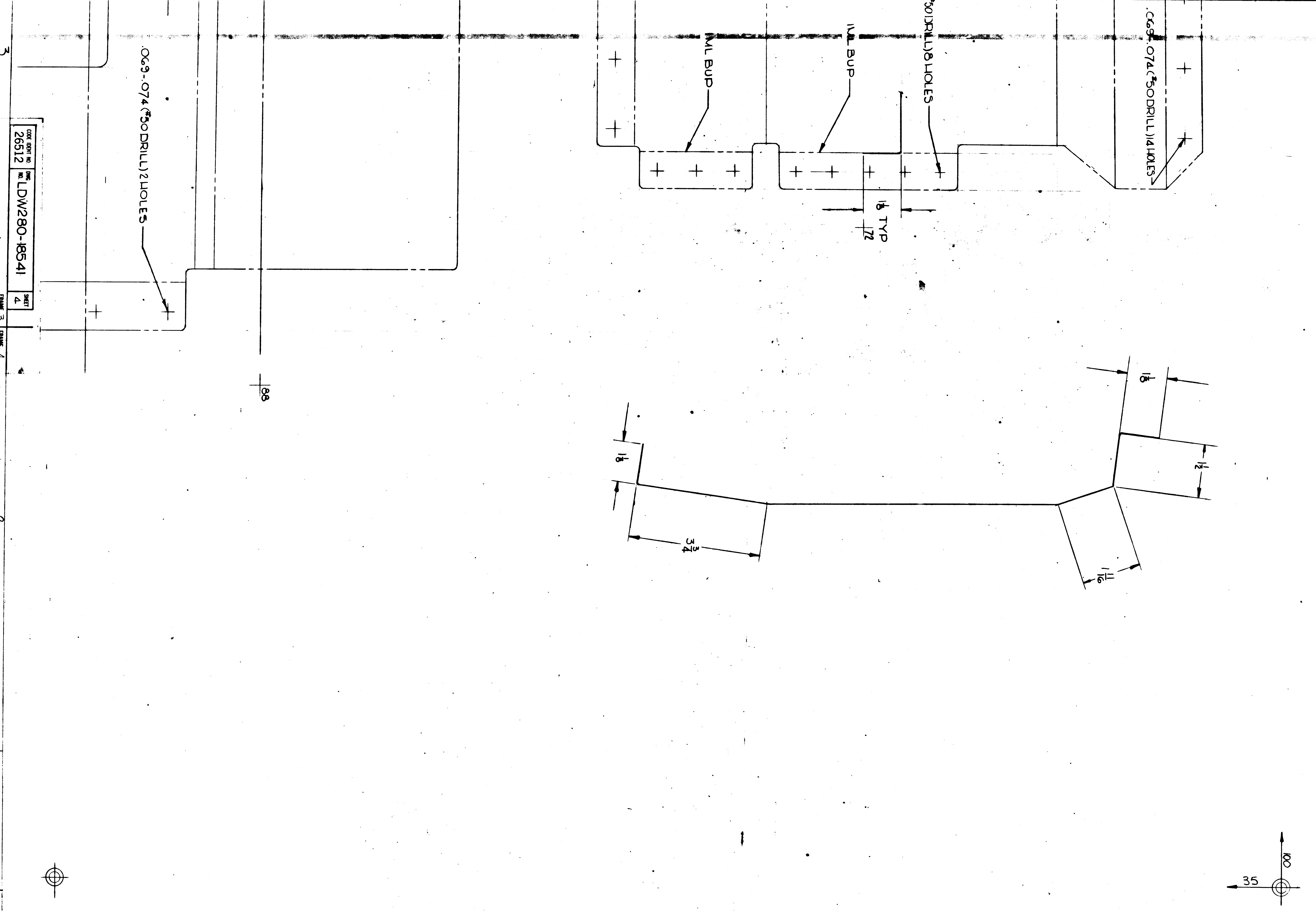
D-18541 SHEET 4

CODE IDENT NO 26512 DWG NO LDW280 18541 SHEET 4



0 18541
SHEET 4
FRAME 2
FRAME 3
NOTE 2)
E F.S.
4
3
7
5/8
.069-.074 (#50 DRILL) 2 HOLES
IML BUP
IML BUP
IML BUP 5¼°
IML BUP
.069-.074 (#50 DRILL) 8 HOLES
1/8 TYP
±1/32
IML BUP 26¼°
IML BUP OPEN 26¼°
IML BDN
.069-.074 (#50 DRILL) 14 HOLES
CODE IDENT NO. 26512
DWG NO. LDW280-18541
SHEET 4
FRAME 3
FRAME 4
4
3

03/04 NAS 9-1100



.069-.074 (#50 DRILL) 2 HOLES
.069-.074 (#50 DRILL) 8 HOLES
.069-.074 (#50 DRILL) 14 HOLES
IML BUP
IML BUP
1/8 TYP
1/2
88
1/8
3/4
1/8
1/2
11/16
100
35
3
2
FRAME 3
FRAME 4

CODE IDENT NO 26512 DWG NO. LDW280-18541 SHEET 4

04/04 NAS 9-1100

FOR PHOTO REPRODUCTION

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE K CODE IDENT NO. 26512 LDW280-18541

SCALE FULL SHEET 4.00

K2

4FR5

LDW280-18541 E LDW280-18541 F G H

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

INSTALL RIVETS IN ACCORDANCE WITH

DWG 771.2 4-67

DWG SIZE 40 x 118

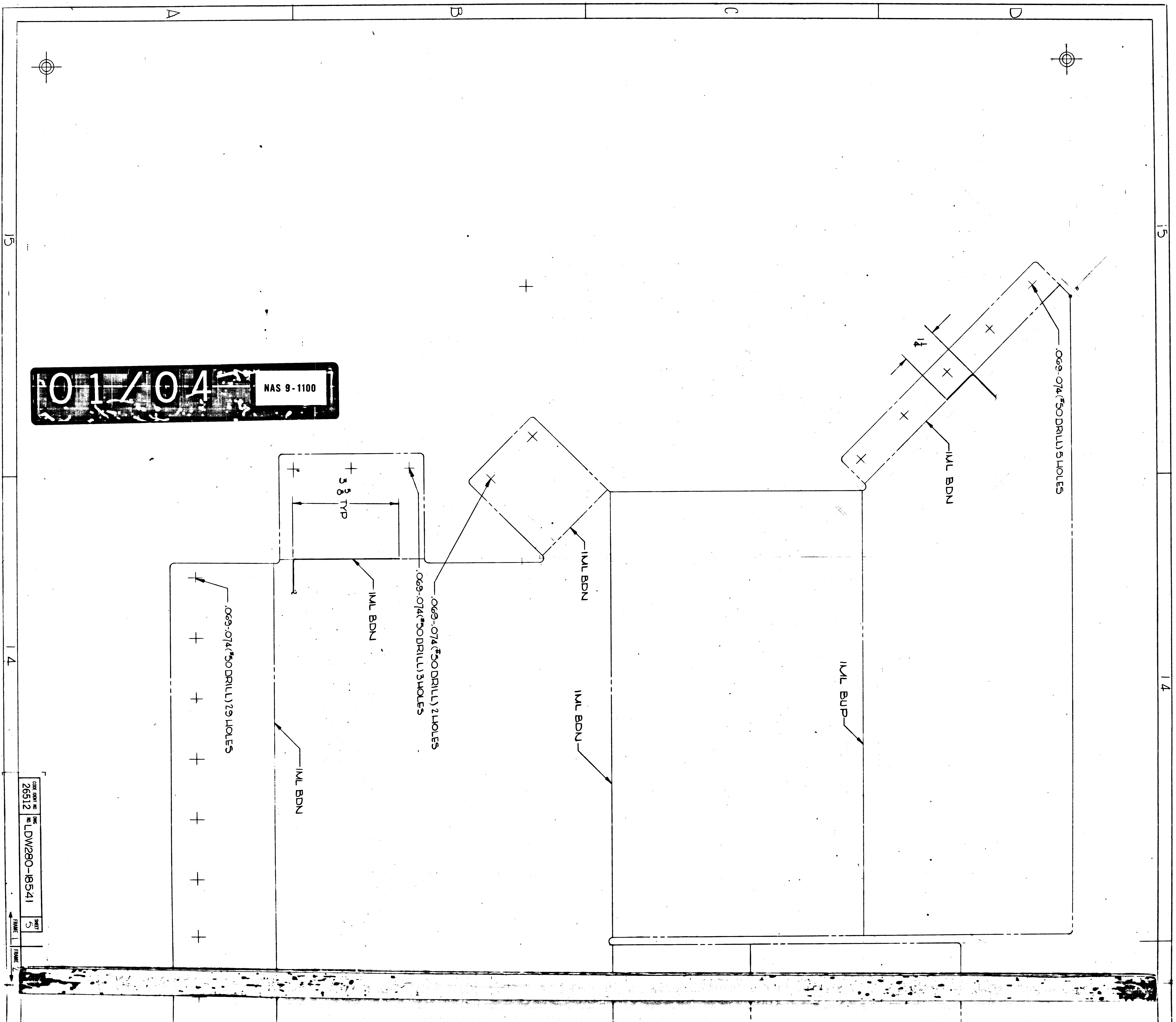
PRINTING INFO ONLY

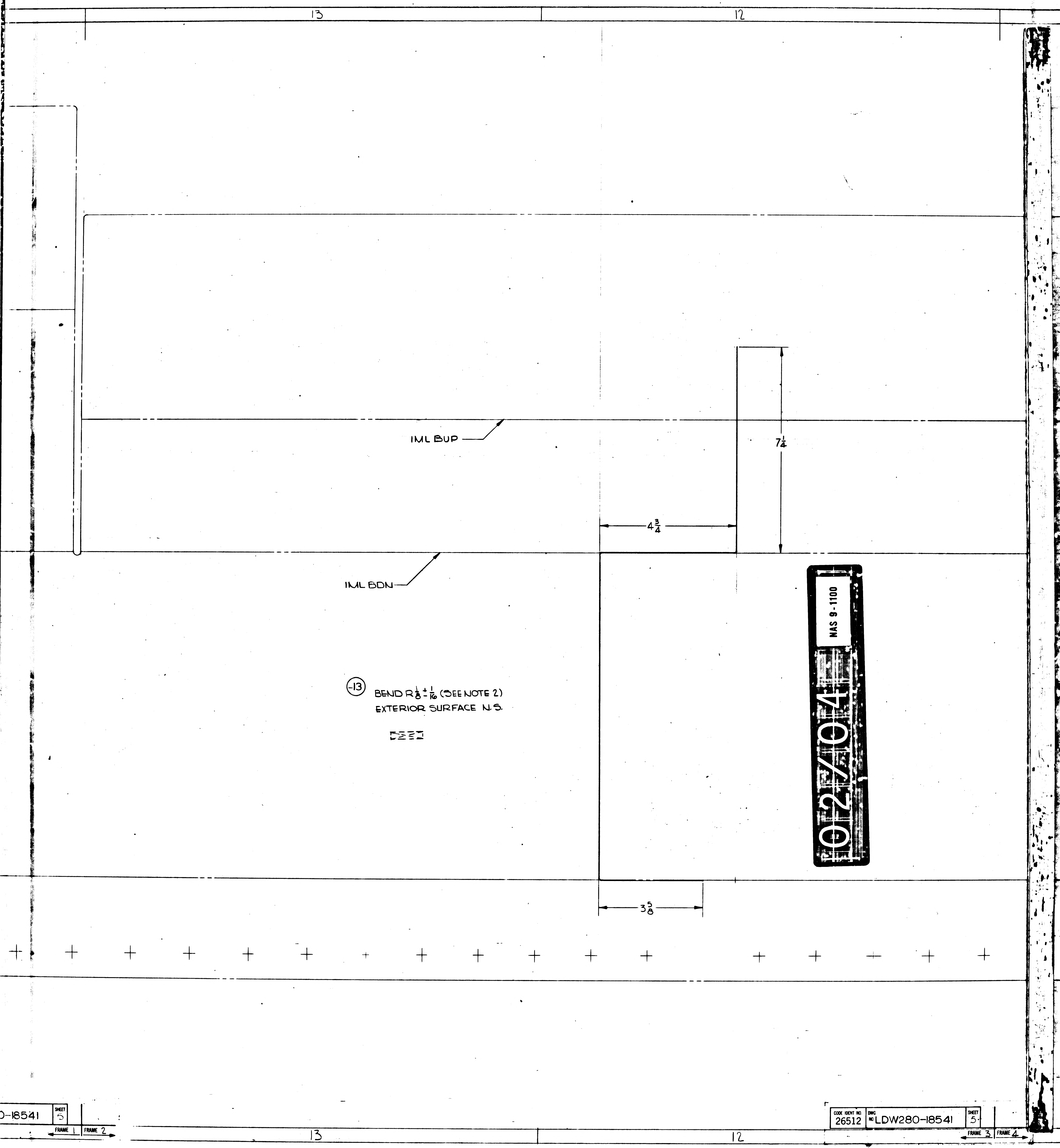
PRINT TRIM LINE

FULL SIZE SHEET AREA (42 x 130) = 38 SQ FT

1/4 SIZE SHEET AREA (1/4 OF FULL) = 9.5 SQ FT

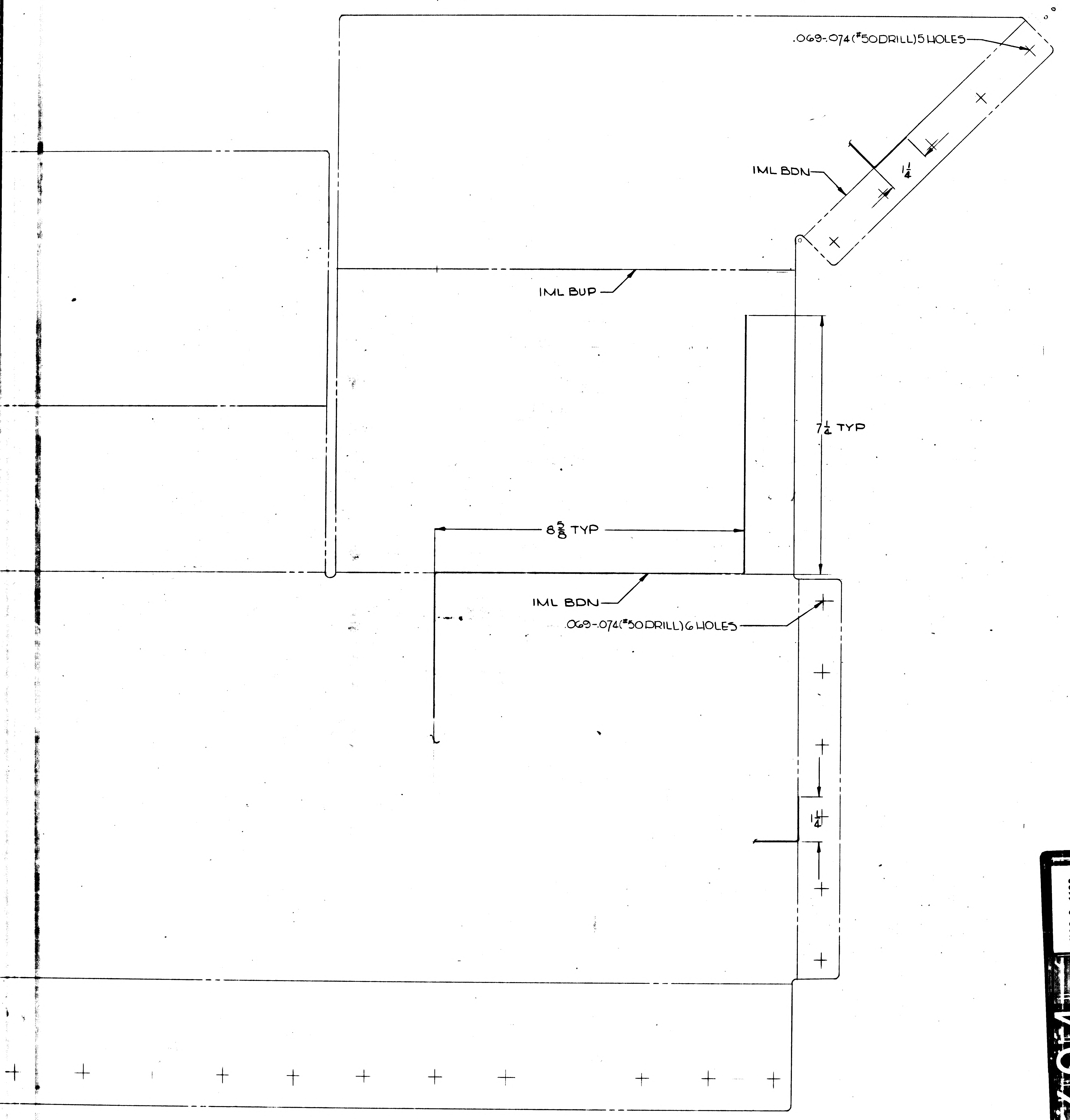
01/04 NAS 9-1100


A
B
C
D
15
14
.069-.074(#50 DRILL) 5 HOLES
1/4
IML BDN
IML BDN
.069-.074(#50 DRILL) 2 HOLES
.069-.074(#50 DRILL) 3 HOLES
3 5/8 TYP
IML BDN
.069-.074(#50 DRILL) 29 HOLES
IML BDN
IML BDN
IML BUP
CODE IDENT NO
26512
DWG NO
LDW280-18541
SHEET
5
FRAME 1
FRAME 2


13
12
IML BUP
IML BDN
7¼
4¾
3⅝
-13
BEND R ⅛ ± 1/16 (SEE NOTE 2)
EXTERIOR SURFACE N.S.
02/04
NAS 9-1100

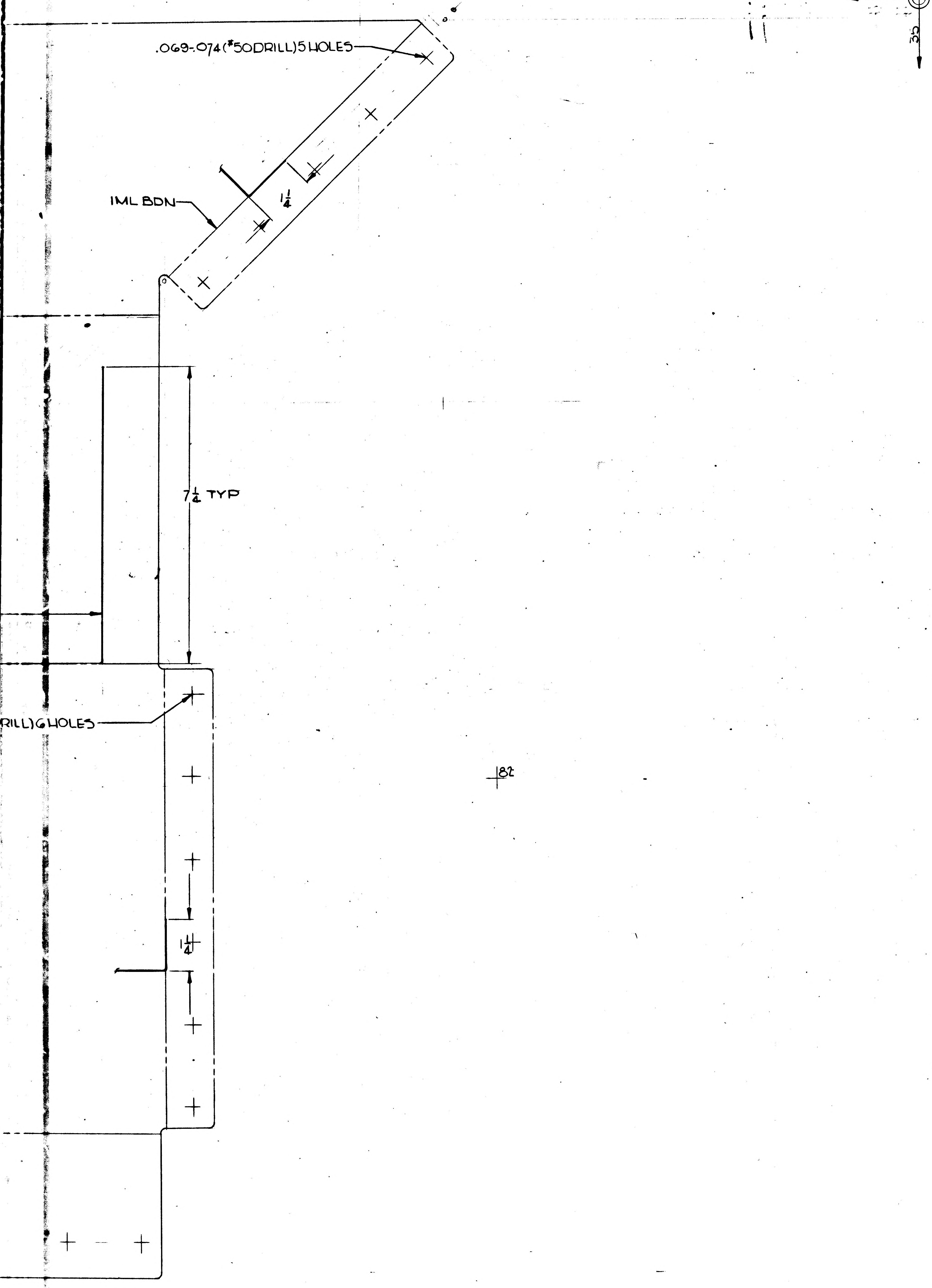
CODE IDENT NO 26512 | DWG NO LDW280-18541 | SHEET 5

FRAME 3 | FRAME 4


.069-.074(#50 DRILL)5 HOLES
IML BDN
1¼
IML BUP
7½ TYP
8⅝ TYP
IML BDN
.069-.074(#50 DRILL)6 HOLES
1¼
82

03/04

NAS 9-1100



SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE 40×112
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 x 122) = 36 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 9 SQ FT

10 9
D C B A

LDW280-18541
LDW280-18541

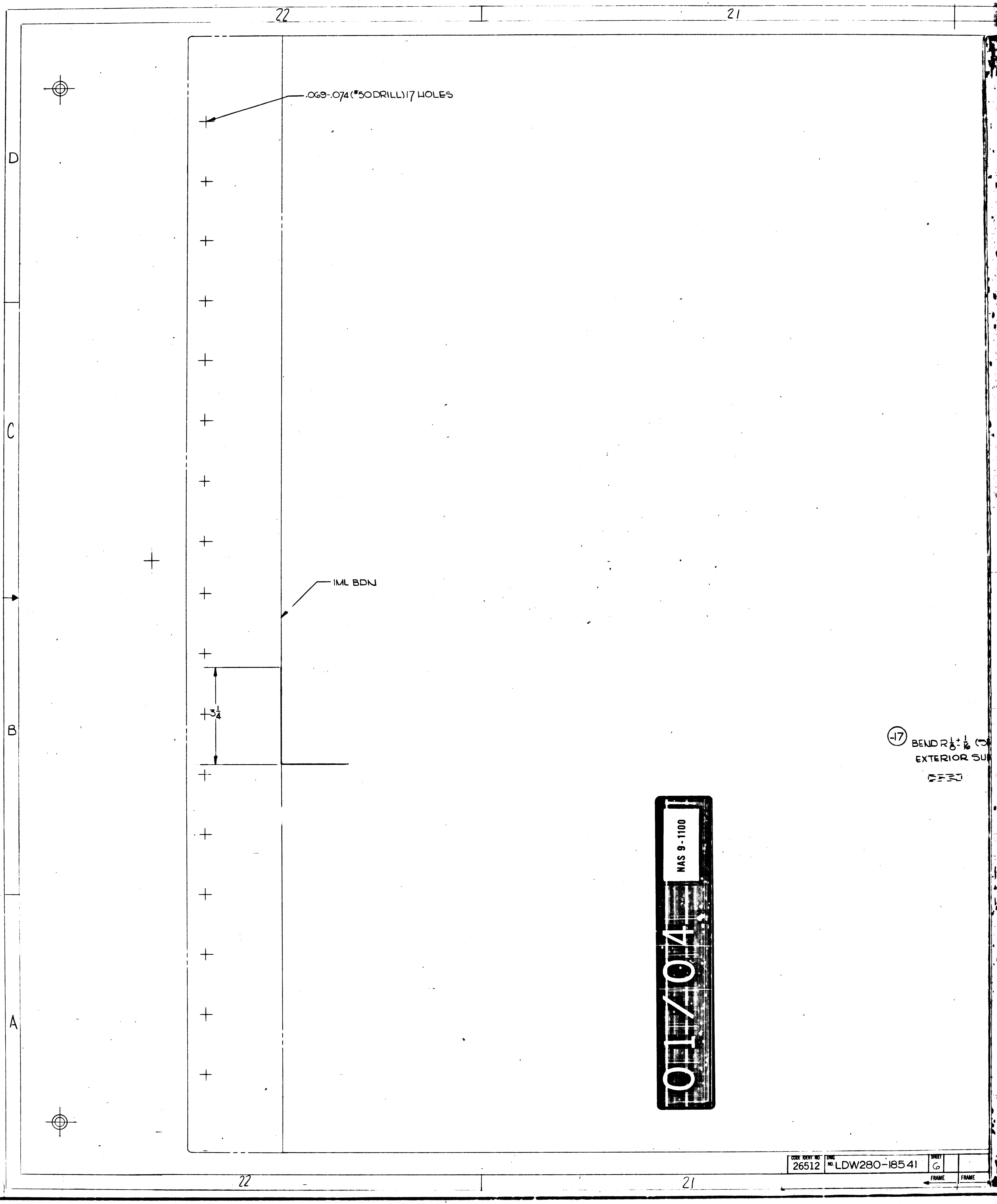
04/04
NAS 9-1100

CODE IDENT NO 26512 | DWG NO. LDW280-18541 | SHEET 5
FRAME 5 | FRAME 6

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
	26512	LDW280-18541	
SCALE FULL		SHEET 5.00	

K2
FOR PHOTO REPRODUCTION
4FRS



22
21
D
C
B
A
.069-.074 (#50 DRILL) 17 HOLES
IML BDN
$3\frac{1}{4}$

(-17) BEND R $\frac{1}{8} \pm \frac{1}{16}$ (
EXTERIOR SU

01/04 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18541	6

FRAME FRAME

20

19

(-17) BEND R$\frac{1}{8}\pm\frac{1}{16}$ (SEE NOTE 2)
EXTERIOR SURFACE N.S.

02/04 NAS 9-1100

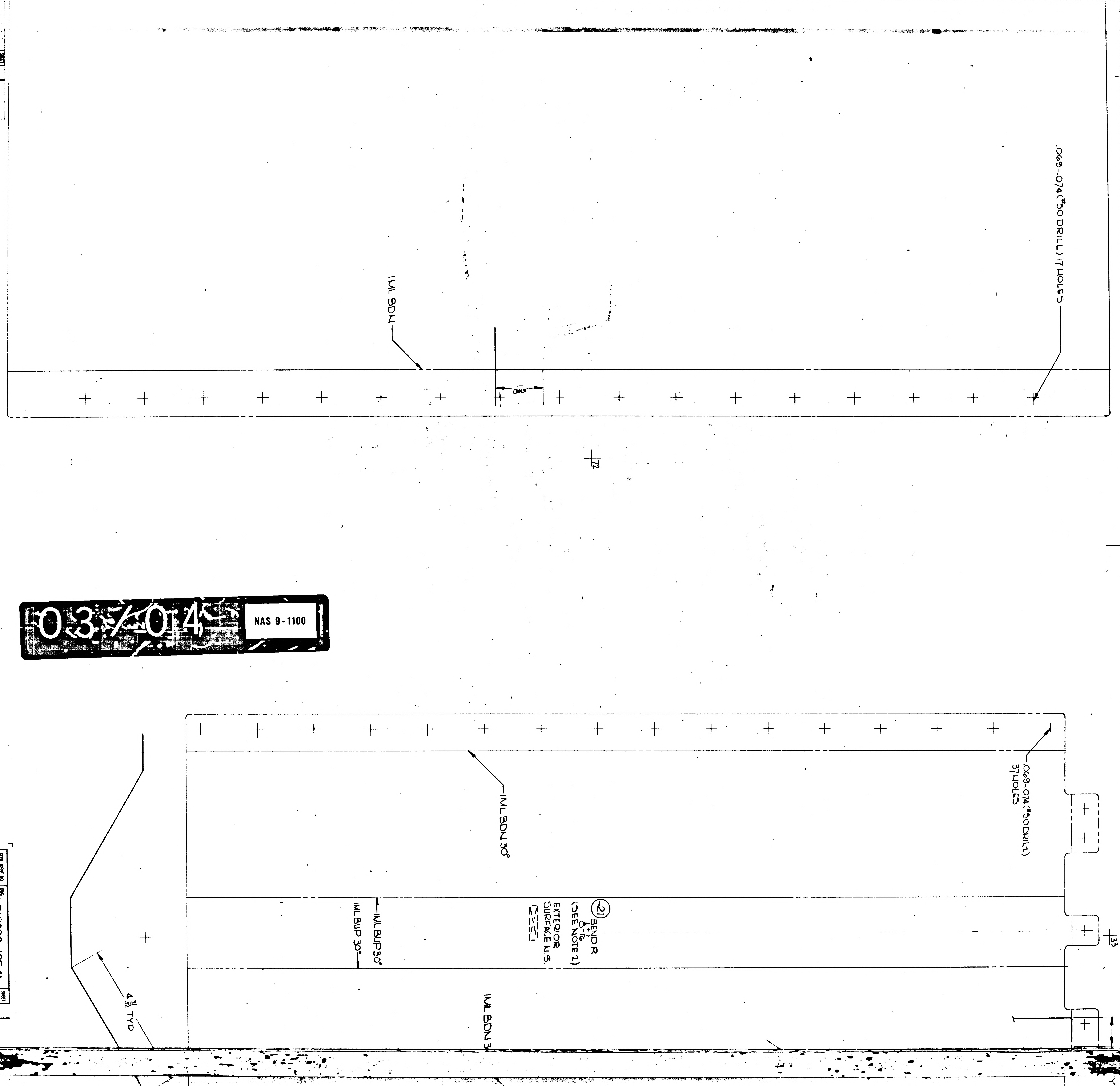
0-18541	SHEET 6		
	FRAME	FRAME	

20

19

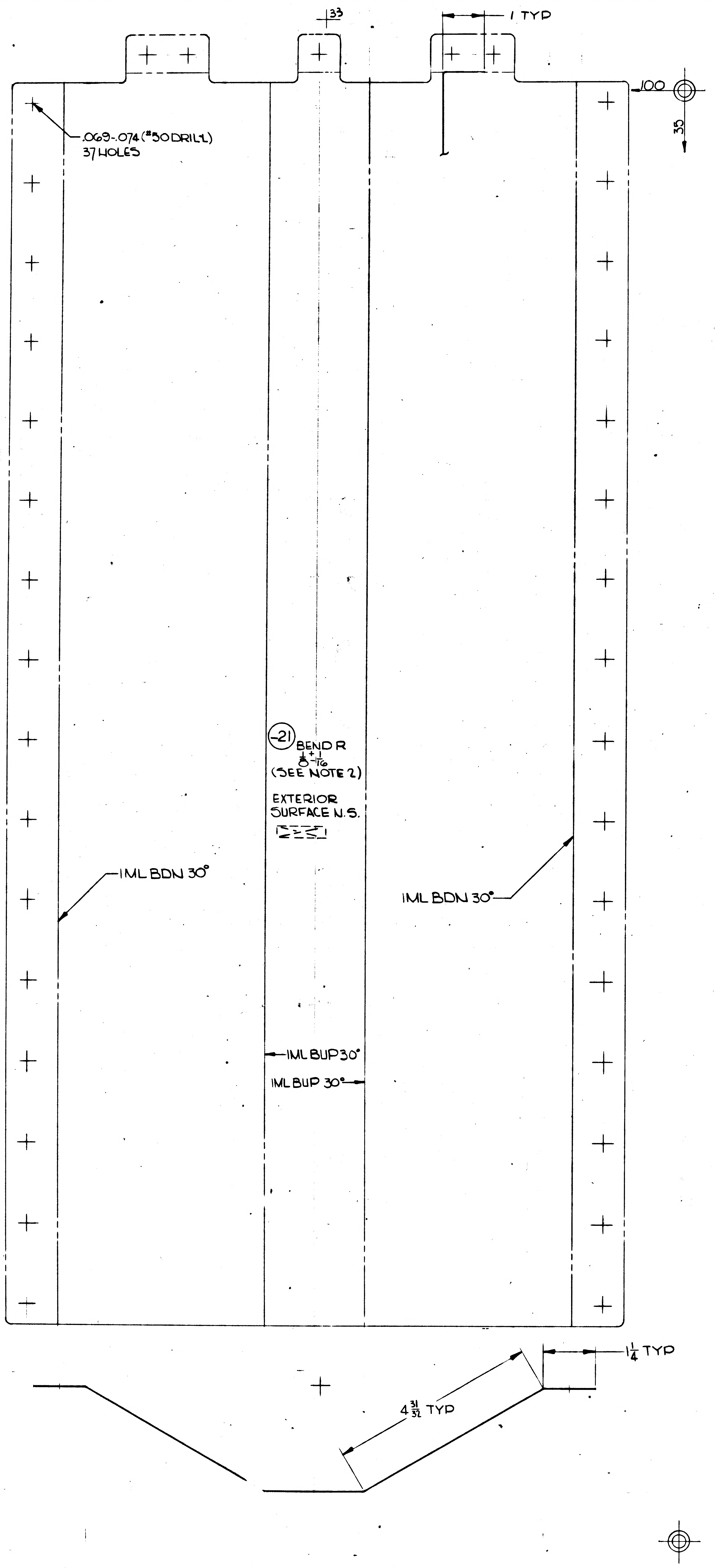
CODE IDENT NO.	DWG NO.	SHEET		
26512	LDW280-18541	6		
		FRAME	FRAME	

03/04 NAS 9-1100


.069-.074(#50 DRILL) 17 HOLES
IML BDN
.069-.074(#50 DRILL) 37 HOLES
IML BDN 30°
-21 BEND R
(SEE NOTE 2)
EXTERIOR SURFACE N.S.
IML BUP 30°
IML BUP 30°
4 31/32 TYP
IML BDN 3
18
17

CODE IDENT NO 26512 DWG NO. LDW280-18541 SHEET 6

FRAME



17
16
.33
1 TYP
.100
35
.069-.074 (#50 DRILL)
37 HOLES
-21
BEND R
$\frac{1}{8}\,{}^{+}_{-}\frac{1}{16}$
(SEE NOTE 2)
EXTERIOR
SURFACE N.S.
IML BDN 30°
IML BDN 30°
IML BUP 30°
IML BUP 30°
$1\frac{1}{4}$ TYP
$4\frac{31}{32}$ TYP

TRAM OK
T.L. 5-15-68

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE 40 X 112

PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 X 122) = 36 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 9 SQ FT

D

C

B

A

LDW280-18541

LDW280-18541

04/04 NAS 9-1100

CODE IDENT NO	DWG NO.	SHEET
26512	LDW280-18541	6

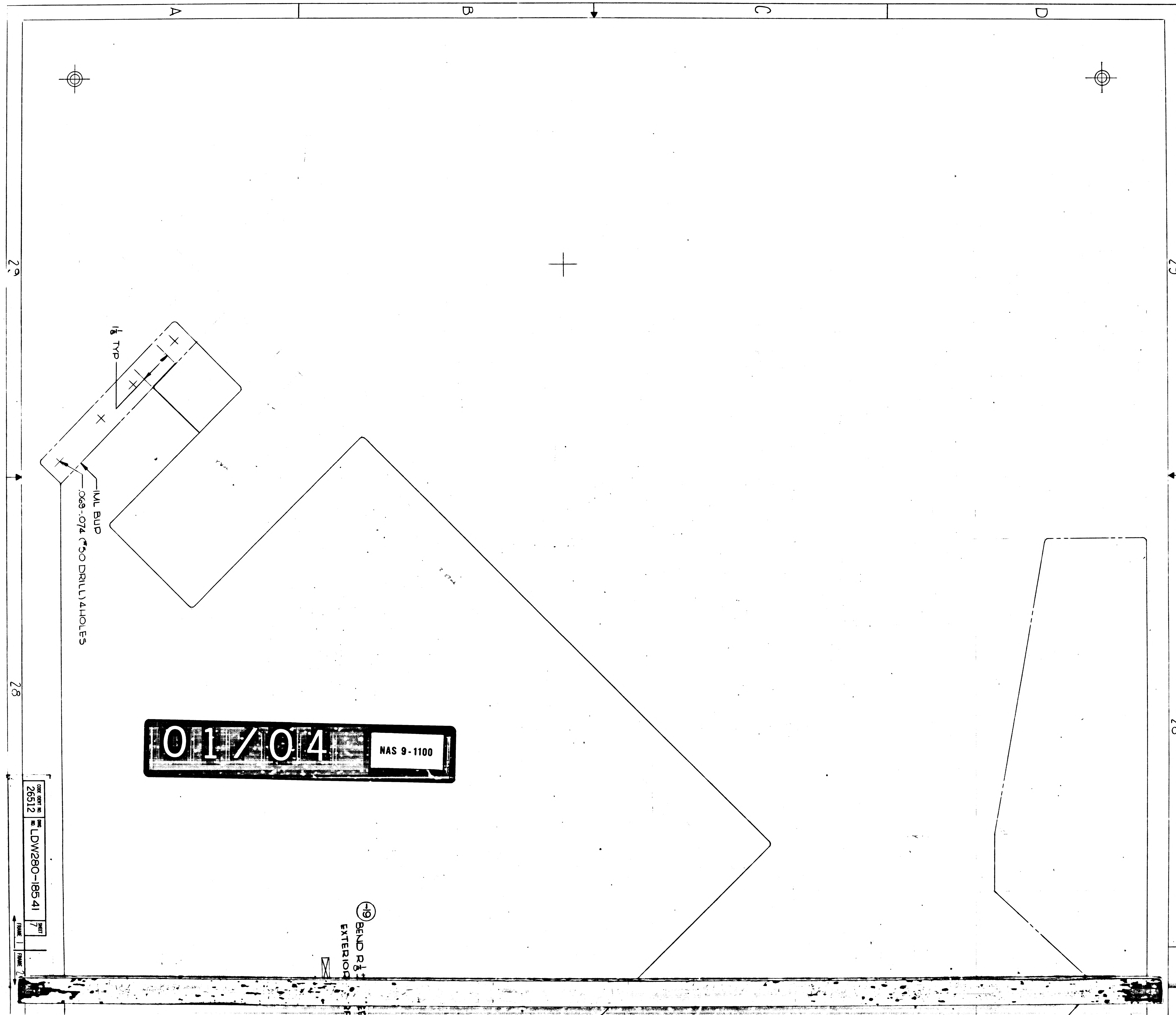
FRAME | FRAME

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
	26512	LDW280-18541
SCALE FULL		SHEET 6.00

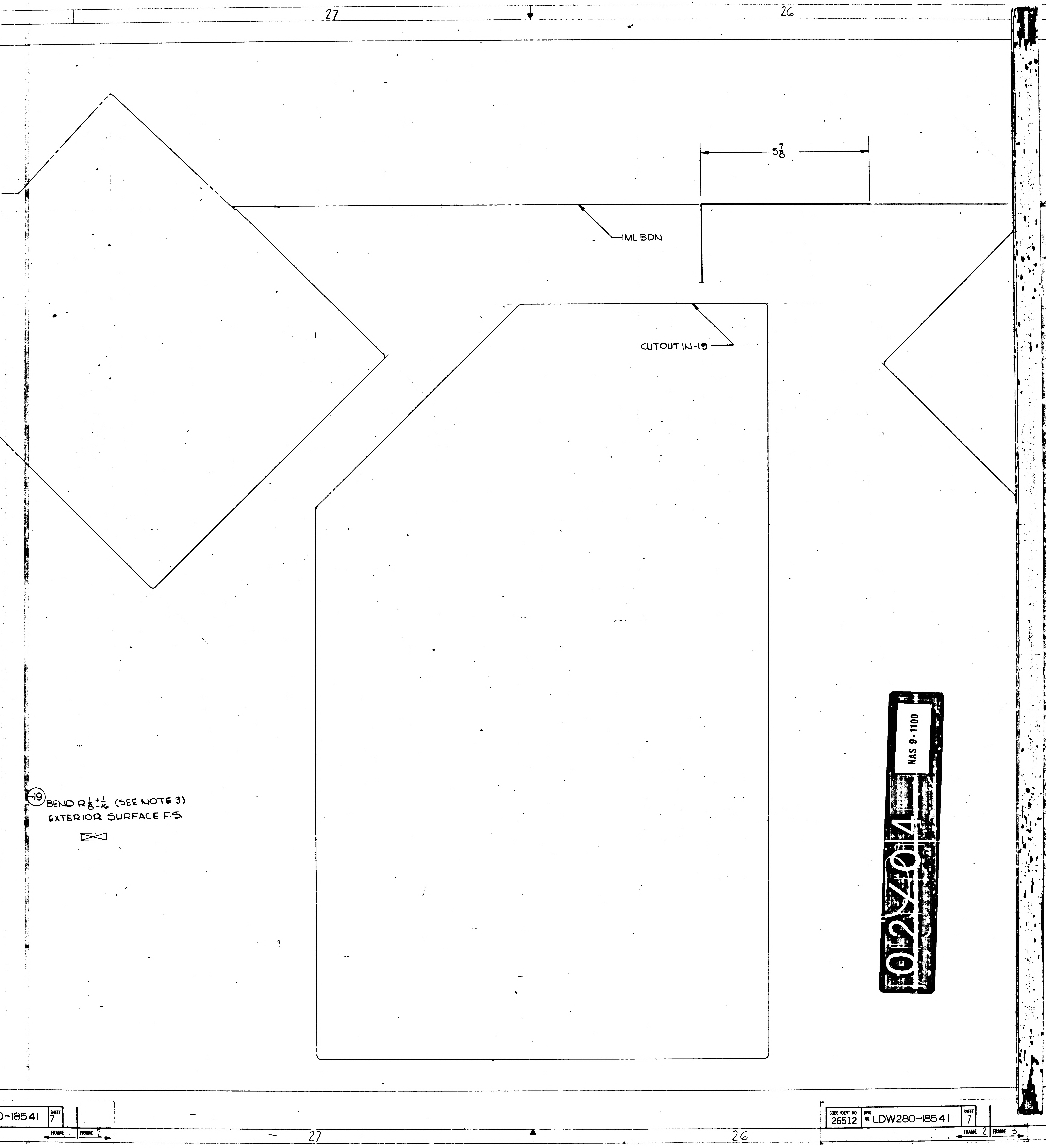
FOR PHOTO REPRODUCTION K2

4FRS


A
B
C
D
29
28
1/8 TYP
IML BUD
.069-.074 (#30 DRILL) 4 HOLES
-19
BEND R 1/8
EXTERIOR
FRAME 1
FRAME 2

01/04 NAS 9-1100

CODE IDENT NO. 26512
DWG NO. LDW280-18541
SHEET 7

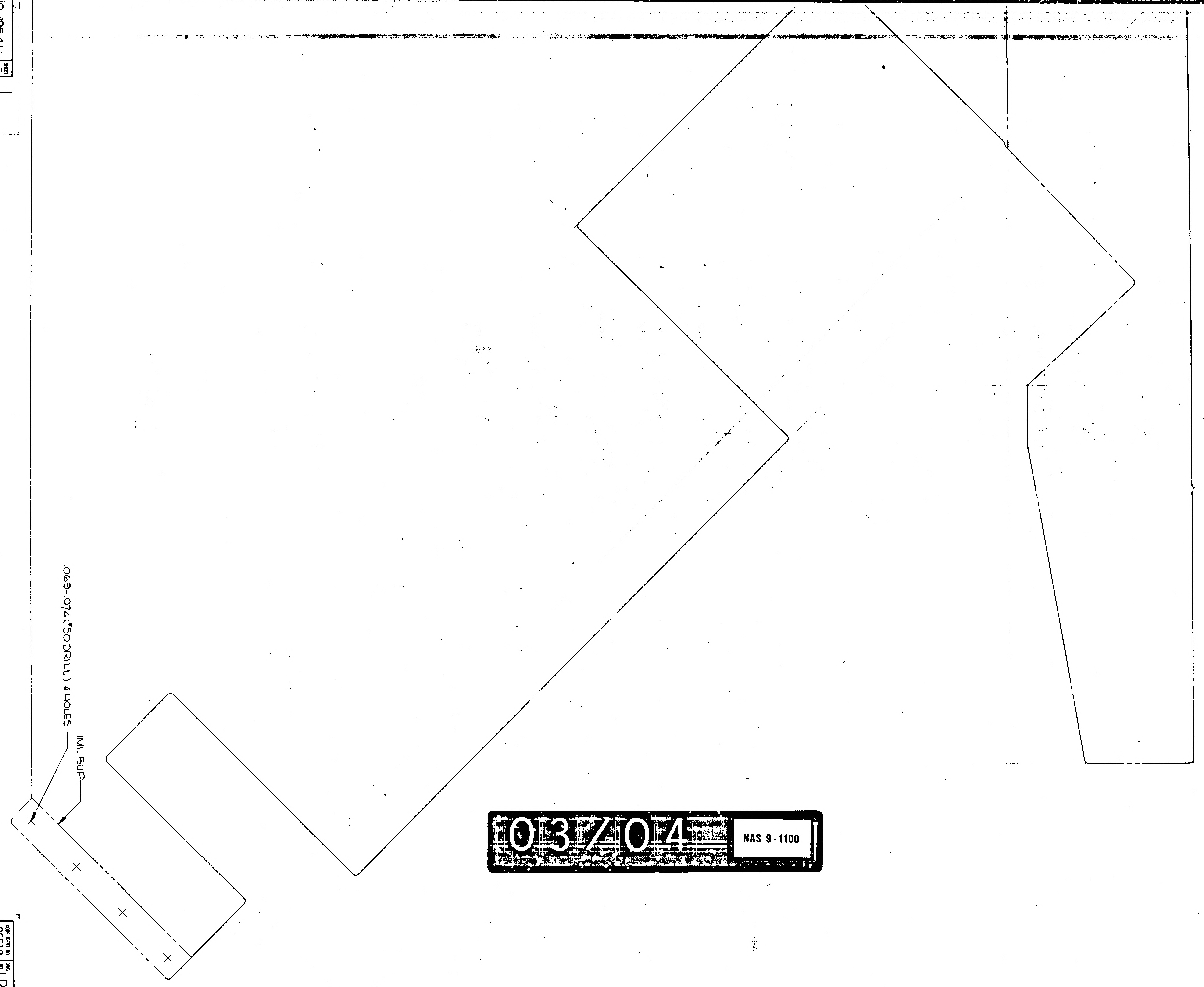

27
26
5 7/8
IML BDN
CUTOUT IN-19
-19 BEND R 1/8 +1/16 -1/16 (SEE NOTE 3)
EXTERIOR SURFACE F.S.
☒
27
26

02704 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18541	7

FRAME 2 | FRAME 3

0-18541 SHEET 7 FRAME 1 | FRAME 2


.069-.074(#50 DRILL) 4 HOLES
IML BUP
84

CODE IDENT NO 26512

DWG NO LDW280-18541

SHEET 7

FRAME 3

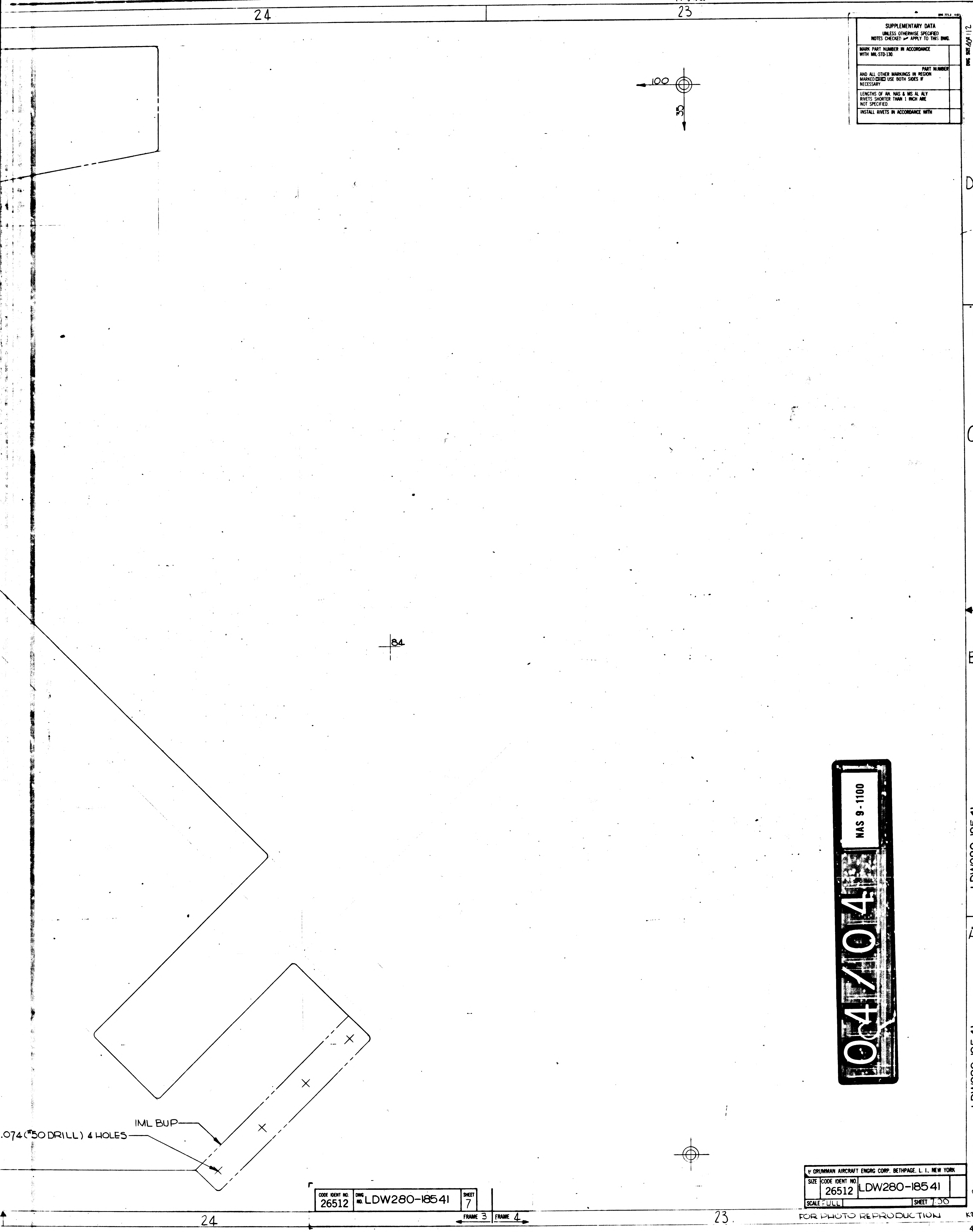
FRAME 4

FRAME 2

03/04 NAS 9-1100

25

24



SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE 40 x 112

PRINTING INFO ONLY

PRINT TRIM LINE

FULL SIZE SHEET AREA 42 x 122 = 36 SQ FT

¼ SIZE SHEET AREA (¼ OF FULL) = 9 SQ FT

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18541	7

04/04 NAS 9-1100

LDW280-18541

LDW280-18541

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
	26512	LDW280-18541
SCALE FULL		SHEET 7.30

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K2

4FRS

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280 -18541		EO NO. A1
CONTROL INFO NO. LDW280P 4536		

ON -21

REVISE MARKING CALLOUT:

EXTERIOR SURFACE FAR SIDE
WAS
EXTERIOR SURFACE NR. SIDE

LFM

(5)
(PKG 5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-33 CCA 498

REASON FOR EO: TO AGREE WITH MARKING ON DWG

DESCRIPTION OF EO: ON-21 REVISED CALLOUT EXTERIOR SURFACE "FARSIDE" WAS "NEARSIDE"

GAEC EO RELEASE: C VC 7/19/68

MODEL	EFFECTIVITY EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM126	LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY				PJT	WJH				
DATE	7/13/68	7-16-68		7/13/68	7/16/68		7/16/68	7-19-68
	VD1	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN D/S - QUAD II	LDW280-18541	A1

71968
ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 280 PL 25

0 1

NAS 9-1100

LDW280-18549

LDW280-18549-N

Contract NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE L.I. NEW YORK

SUPPORT

Size	Code Ident No.	
B	26512	LDW280-18549

01

NAS 9-1100

LDW250-[illegible] SUPPORT [illegible] LINE 55

CODE IDENT	PART NO.	REQD	NOMENCLATURE OR DESCRIPTION	MATERIAL	CONT SPEC	MATL SPEC	STOCK SIZE	PROCESS SYM	PROG NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
55	ANODIZE	[illegible]

NONE

GRUMMAN AIRCRAFT ENGINEERING CORP. BETHPAGE L.I. NEW YORK

SIZE	CODE IDENT NO.	
3	26512	LDW250-18549

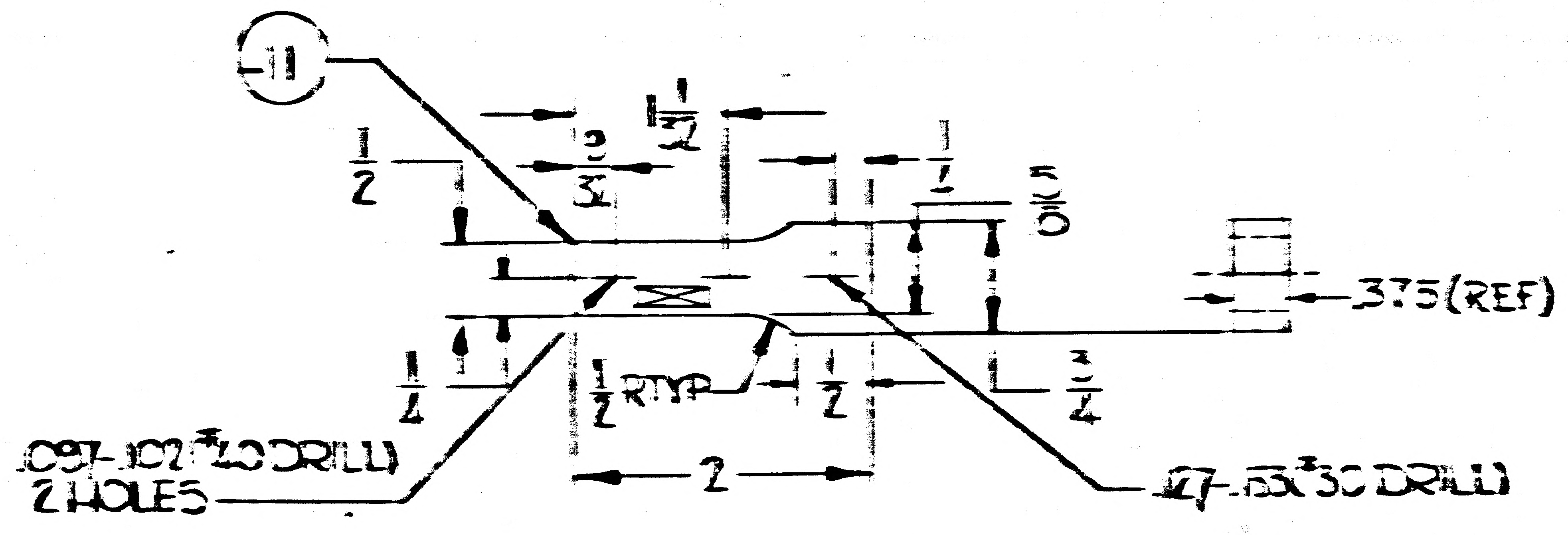
SCALE NONE SHEET

01

[illegible] 9-1968

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL DT 3 MARKINGS IN REGION MARKED "X" USE BOTH SIDES IF NECESSARY.	✓


-11
1 1/32
3/32
1/2
1/2
5/8
.375 (REF)
1/4
1/2 R TYP
1/2
3/4
2
.097-.102 (#40 DRILL) 2 HOLES
.127-.133 (#30 DRILL)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT. NO.	
B	26512	LDW280-18549

SCALE FULL   SHEET 3 OO

01

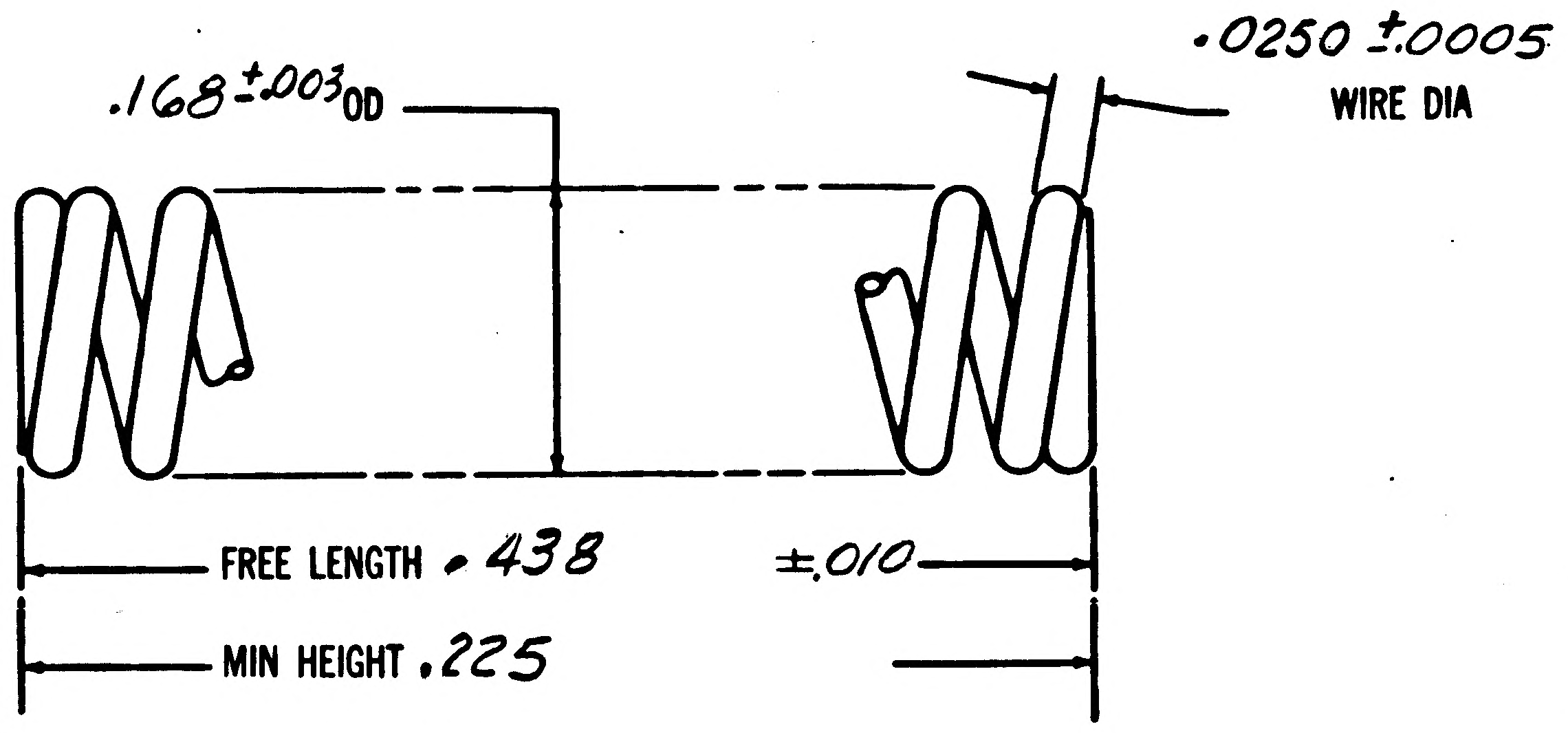
NAS 9-1100

ENGINEERING INFORMATION ONLY

DEFLECTION RATE: 40 LBS/INCH | MAX.LOAD IN RANGE: 4 LBS

DESIGN SPRING LIFE 10,000 CYCLES AT STRESS RANGE 50 %

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	APPD ENGRG	APPD GOVT



MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	TM-5/R(65)	2
LM	LDW280-54626	DESIGN VERIFICATION TEST (20)	2
↑	LDW280-54626	LM-15(45)	2
	↑	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
↓	↓	LM-4(34)	2
LM	LDW280-54626	LTA-3(13)	2

NO. OF ACTIVE COILS: 4 1/2

NO. OF TOTAL COILS: 6 1/2

ENDS TO BE CLOSED AND GROUND SQUARE

DIRECTION OF COILING OPTIONAL ✓

TOLERANCE ON PROPORTIONATE LOAD ± 10% UP TO FROM SOLID HEIGHT

SPRING TO OPERATE INSIDE OF .184 DIA; OUTSIDE OF DIA

STRAIN RELIEVE AFTER FORMING. MAGNAFLUX IF WIRE DIA IS GREATER THAN .063

INSPECTION TEST LOAD AT .338 INCHES TO BE 4 LBS [redacted] ±.50 LBS

FINISH:

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18550-11	E	MUSIC WIRE	QQ-W-470	MUSIC WIRE

PART NO. LDW280-18550-11

GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 111 (5)

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS – DECIMALS – ANGLES ±1/32 ±.020 ± 1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433 (CCA586) ok

LCD3075 (CCA586) ok

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY R. CLARK

LAYOUT BY

CHECKED BY WCG 5/17/68

VEHDSGNINT J. Landi 5/3/68

GR LEADER J. Thomas 5-3-68

STRUCTURE OK

STRUCTURE

PROJ ENGR L. Pusateri 5/9/68

RELEASE L. Marsh 5/18/68

GRUMMAN REL INFO | PRIM NO. 207 | VC(001) MP-16 5/20/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DESCENT STAGE ALSEP BOOM
SLAVE MECH.

SIZE B | CODE IDENT NO. 26512 | LDW280-18550

SCALE NONE | SHEET 1.00

CDR 05 10 68 (10)

ENG 77.12 9-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B 7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538 ✓	A1	
-18550 ✓	A1	
-18553	A1	
-18557	A3	
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 3	CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/16/69			4-2-69	4/18/69		4/16/69	4/16/69
	VJI							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1348

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓LDW280-18531	SEE DWG	B2
550		A2
553		A2
557		A4
558		A6
560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 38 (E)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	APPROVED BY	DATE	
VDI		7-29-69	
SUPPORT			
RELIAB. GROUP			
GROUP LEADER		7/29/69	
STRESS GROUP	N	8-2-69	
LIAISON ENGRG			
PROJ ENGRG		8/4/69	
~~GOVT~~	Bauman	8-15-69	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18551

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60631	LTA3DR/1(46)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
LM	LDW280-60631	LTA-11(23)	1EA

PART NO. LDW280-18551-11, -13 & -15

GAEC SCH NO. 50-5

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16 9/25/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3994

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A. MASONE 9/17

LAYOUT BY R. BEHAN R.B. 9/19/69

CHECKED BY 9/19/69

GROUP LDR 9-19-69

VEH DESINT

STRUCTURE A.R.A.

STRUCTURE NJA 9/25/69

PROJ ENGR 9/25/69

REL GROUP 9-25-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE - R.H. AFT BEAM
PANEL ~ GOX MODULE SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18551

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

PKG. 87

CDR 9-29-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18551-15	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS183A13DG×1 1/8	T73	88	
		LDW280-18551-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.036×3×17	T6	88	
		LDW280-18551-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.036×3×17	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088
T73	AL HEAT TREAT	LSP-14-5201

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18551

SCALE NONE

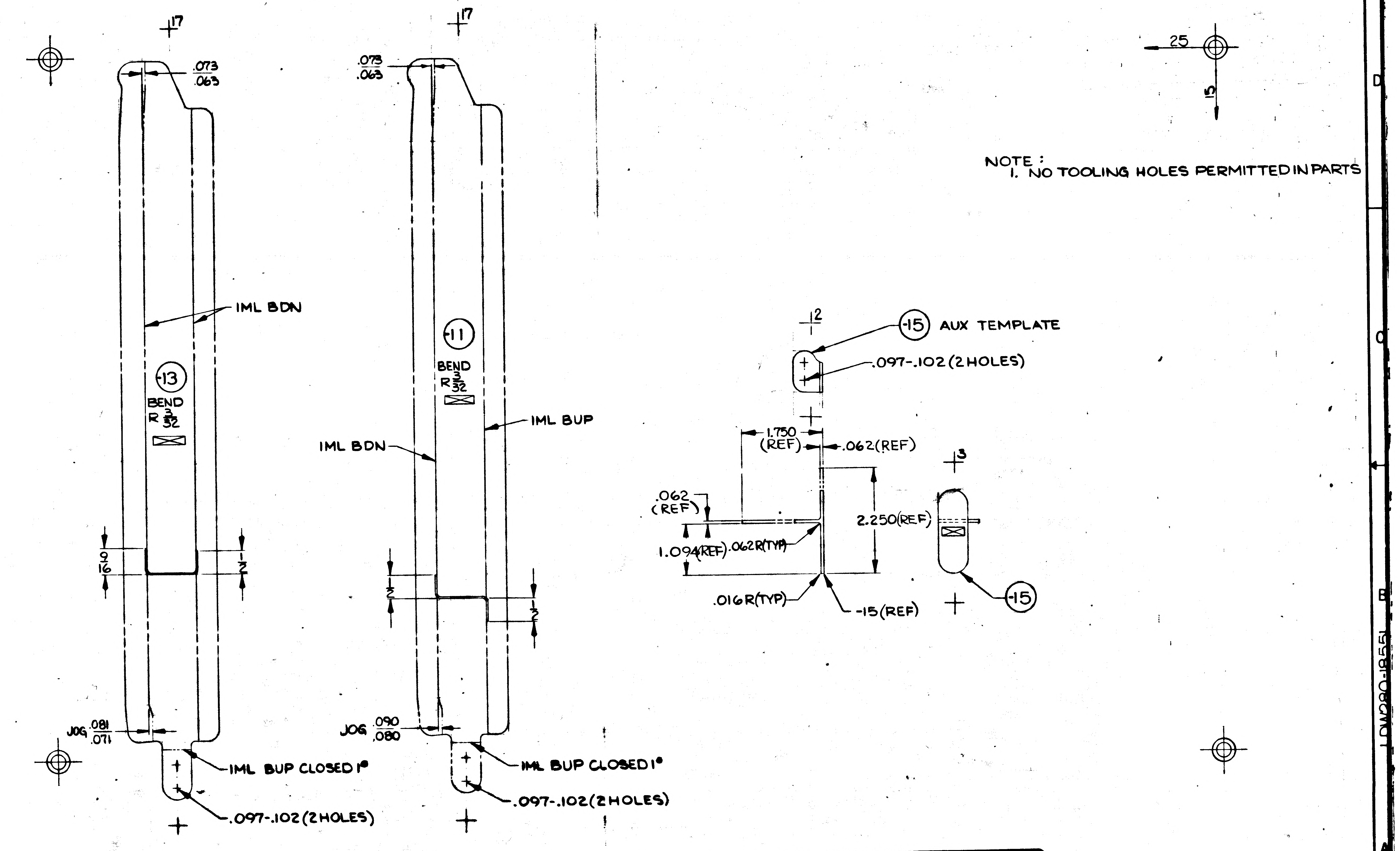
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


17
.073
.063
IML BDN
⑬
BEND
R 3/32
9/16
1/2
JOG .081 / .071
IML BUP CLOSED 1°
.097-.102 (2 HOLES)
17
.073
.063
⑪
BEND
R 3/32
IML BUP
IML BDN
JOG .090 / .080
IML BUP CLOSED 1°
.097-.102 (2 HOLES)
2
-15 AUX TEMPLATE
.097-.102 (2 HOLES)
1.750 (REF)
.062 (REF)
.062 (REF)
2.250 (REF)
1.094 (REF)
.062 R (TYP)
.016 R (TYP)
-15 (REF)
3
-15
25
15

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18551

SCALE FULL SHEET 3 00

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01

NAS 9-1100

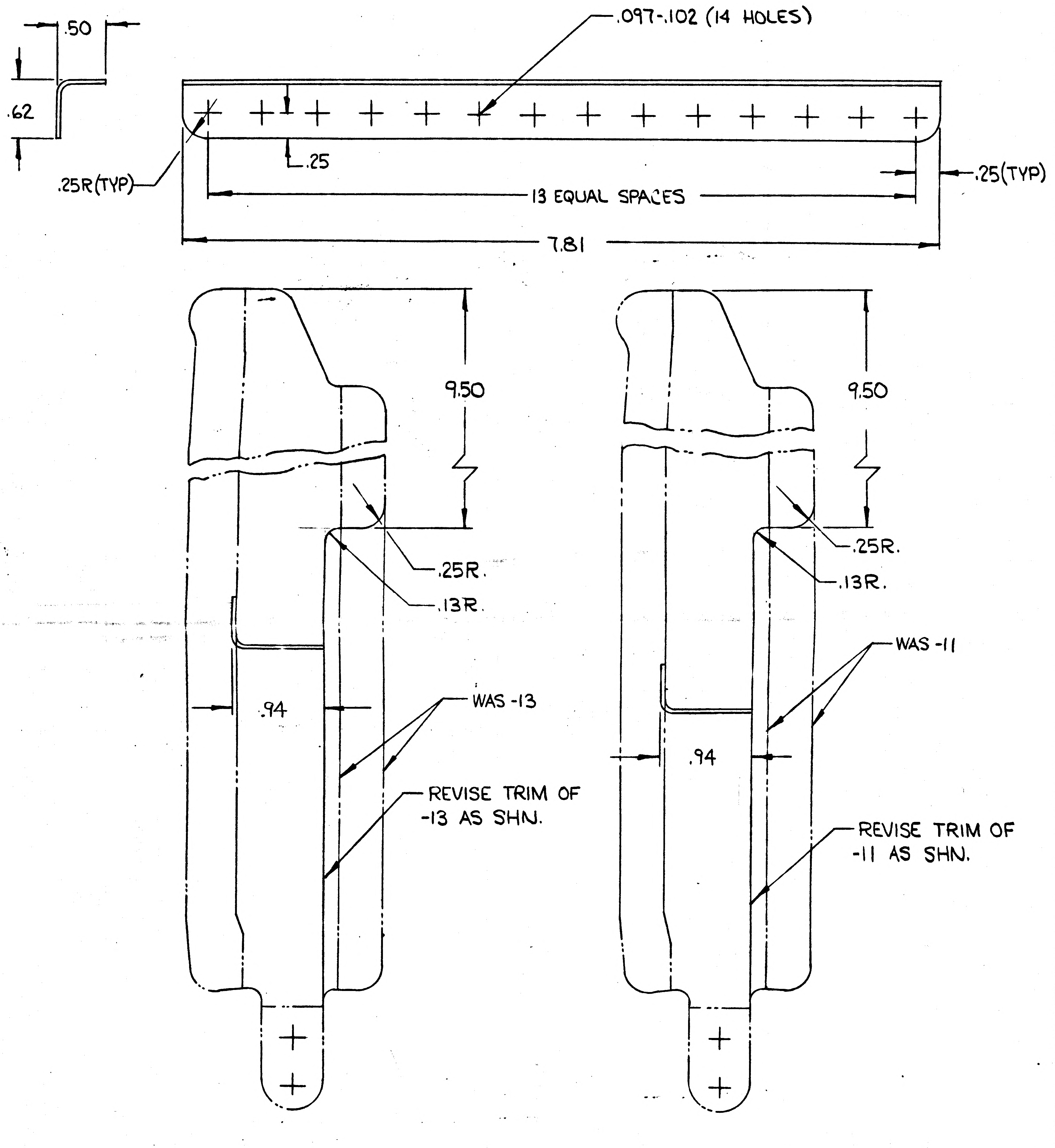
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18551 | EO NO. A1
CONTROL INFO NO. LDW280B9371

IN F/D, B/M & M/B ADD -17 ANGLE, .040 7075-W AL. ALLOY SHT., QQ-A-250/12. HEAT TREAT TO T6, B/R 3/32, FINISH 88, N/A LDW280-60631, 2 REQ'D/MOD., EFF. LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3D|R-1(460).

I & T = E


.50
.62
.097-.102 (14 HOLES)
.25
.25R(TYP)
.25(TYP)
13 EQUAL SPACES
7.81
9.50
.25R.
.13R.
.94
WAS -13
REVISE TRIM OF -13 AS SHN.
9.50
.25R.
.13R.
WAS -11
.94
REVISE TRIM OF -11 AS SHN.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 87	(5)

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH GOX MODULE REGULATOR CAP IN ROTATED POSITION.

DESCRIPTION OF EO: ADDED -17 & REVISED TRIM OF -11 & -13.

GAEC EO RELEASE: K 11/18/69

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44), LTA-11(23)	
		& LTA-3D|R-1(460)	

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	PGf				W/H				
DATE	11-17-69			11/15/69	11/17/69		11/17/69	11/17/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C

DRAWING TITLE: ZEE~DESCENT STAGE~R.H. AFT BEAM PANEL~GOX MODULE SUPPORT

DRAWING NO. LDW280-18551

EO NO. A1

11/17-69 ISSUED BY R. BEHAN, G. HANSMANN x86046 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18551 | EO NO. A2

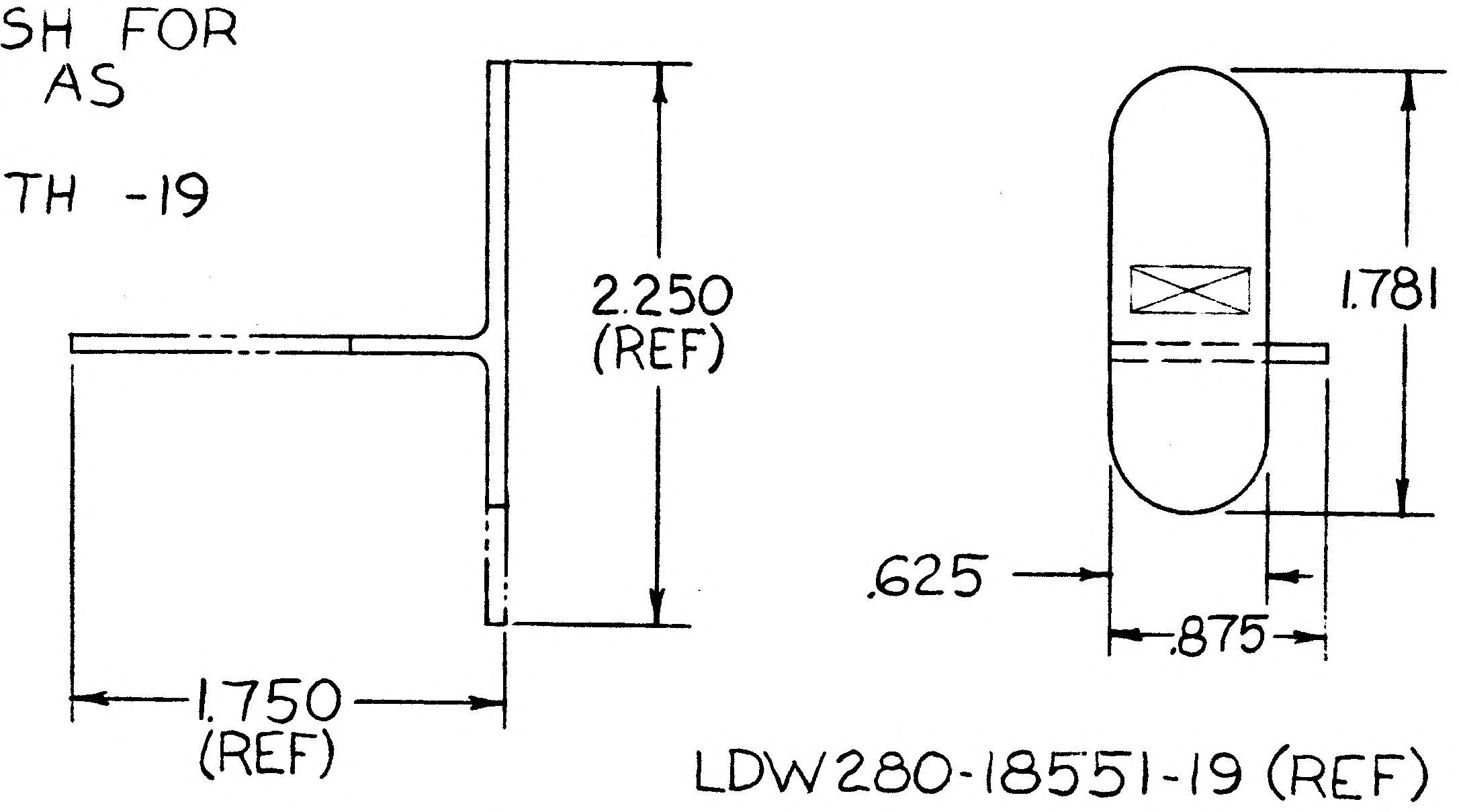
CONTROL INFO NO. LM-2-5742

IN F/D

ADD -19 TEE AS SHOWN. TOP VIEW IS IDENTICAL TO THAT OF -15. (NOTE- -15 & -19 ARE L.H. & R.H. PARTS.)

MATERIAL & FINISH FOR -19 TO BE THE SAME AS THAT FOR -15.

REPLACE -15 WITH -19 ON NHA.



LDW280-18551-19 (REF)

x16

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 87 (2)

REASON FOR EO: PART IS INCORRECT. CAN NOT BE INSTLD ON NHA.

DESCRIPTION OF EO: IN F/D & B/M REPLACED -15 WITH -19.

GAEC EO RELEASE: R

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-3DR/1	(460)
LM		LTA-11(23)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | -15 SCRAP

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
					KC			
DATE 4 Dec 69	12-17-69 VDI	SUPPORT	RELIAB. GROUP	12/11/67	12/4/69	12-5-69	12/	12/8/69

PRIORITY: C

DRAWING TITLE: ZEE~D/S R.H. AFT BEAM PANEL~GOX MOD

DRAWING NO.: LDW280-18551

EO NO.: A2

ISSUED BY LIAISON J. STECEWYCZ X2353 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

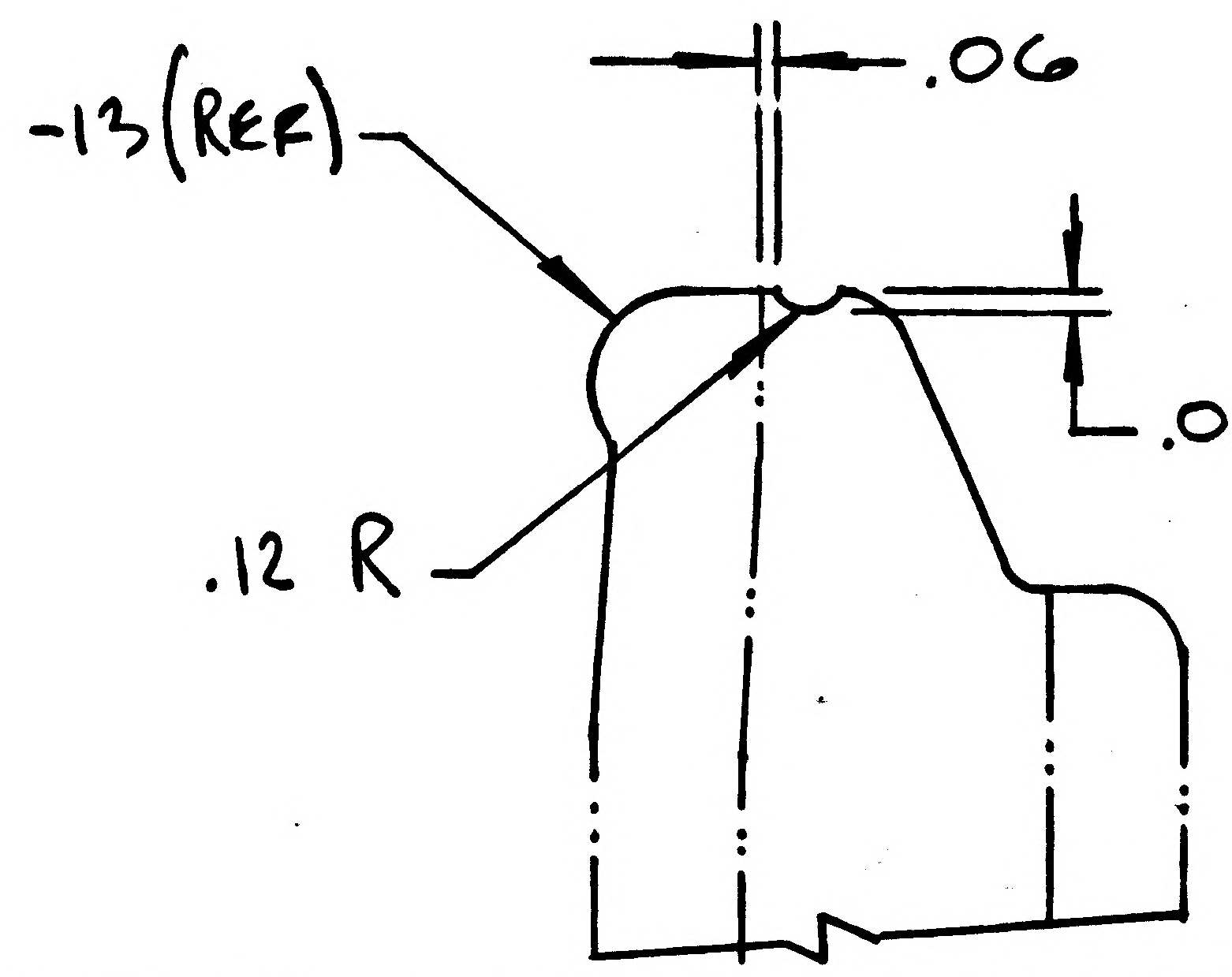
ENG 32.1 REV 3-65

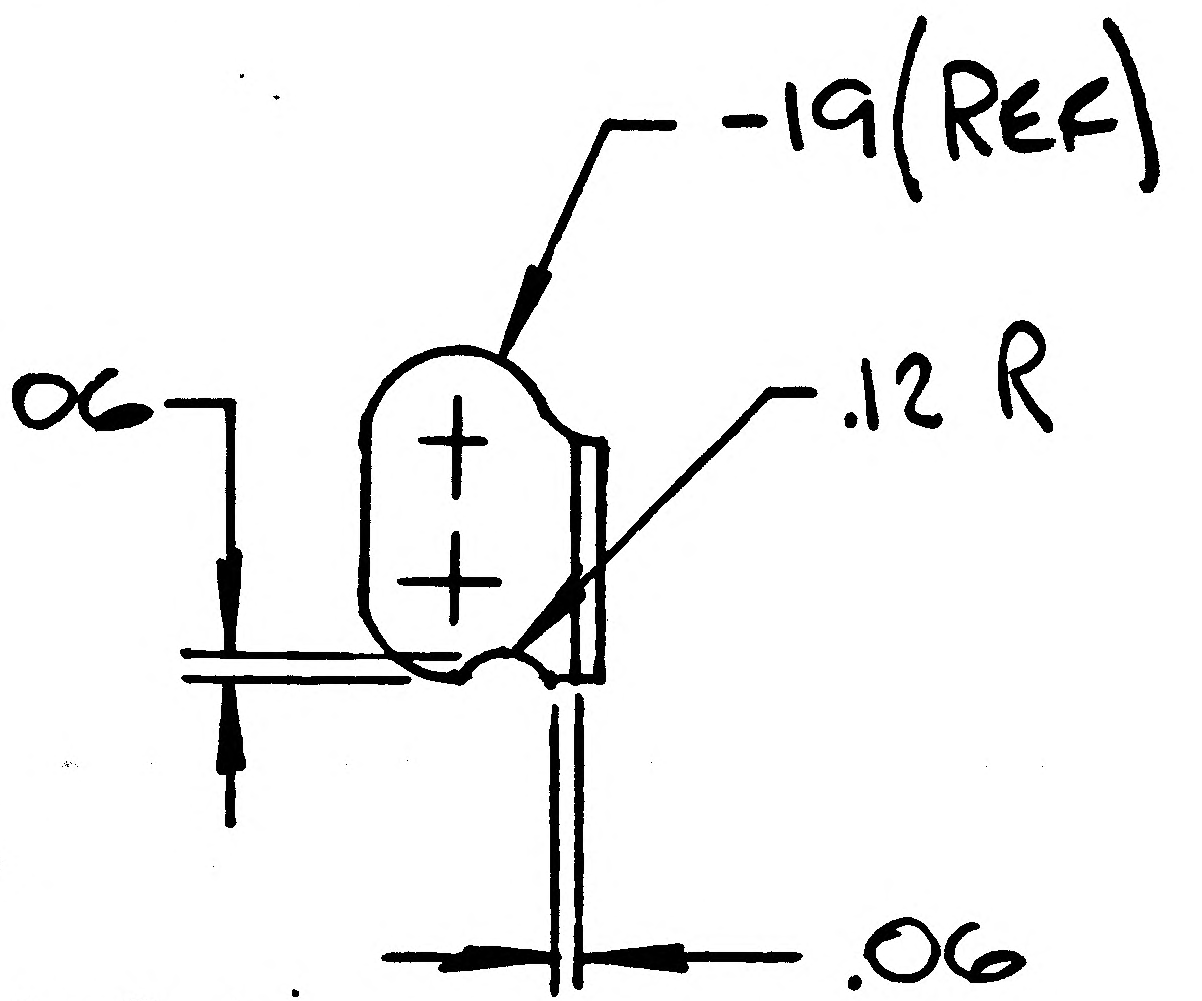
ENGINEERING ORDER

DWG NO. LDW280-18551 EO NO. A3

CONTROL INFO NO. LM-C-23631

(REF EO A2)
FOR -13 & -19, ADD CUTOUT AS SHOWN. (DIMENSIONS ARE NOT TO BE ADDED TO LOFTED DWG.)
FOR REWORK, BRUSH ALODINE REWORKED AREAS.





SHOP REWORK
NOTE: IF PARTS ARE INSTALLED, THEY MAY BE "SHAVED" ONLY AS/IF REQD FOR HARDWARE CLEARANCE.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 5551

REASON FOR EO: CLEARANCE REQD FOR INSTL HARDWARE ON NEXT ASSY.

DESCRIPTION OF EO: REVISED TRIM OF -13 & -19.

GAEC EO RELEASE: W.R.N. 1-5-71

MODEL	EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 603	LM-10 (40)	
		LM-11 (41)	THRU LM-13 (43)
		LTA-3 (46)	LTA-11 (23)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
X		X		12/19/70	PST 1-4-71 VDI			1/4/71	KC. 12/19/70	ALW 12/19/70	PST 1-4-71	12-22-70

PRIORITY: C

DRAWING TITLE: ZEE ~ DESCENT STAGE ~ R.H. AFT BEAM PANEL ~ GOX MOD, SPT

DRAWING NO.: LDW280-18551

EO NO.: A3

ISSUED BY LIAISON ART WILSON X86755 SECTION VDI GROUP NO. 0335 PL 025

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18551
EO NO. A4
CONTROL INFO NO. LM-5-23664

(Ref EO A3) FOR -13 & -19:

"LCD 5551" SHOULD BE "LCD 5551 & LCD3994."

ALSO, IN "EFFECTIVITY" BLOCK, "LTA-3 D/R(46)" SHOULD BE "LTA-3DR/1(460)."

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD5551 & LCD3994

REASON FOR EO: CLERICAL ERROR.

DESCRIPTION OF EO: (REF EO A3) FOR -13 & -19 ADDED LCD 3994 TO LCD 5551 & EFF "LTA-3DR/1 (460)" WAS "LTA-3 D/R(46)."

GAEC EO RELEASE

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM603	LM-10(40)	
		LM-11(41) THRU LM-13(43)	
		LTA-3DR/1(460)	LTA-11(22)

DRAWING CHANGE REQD: REVISE DWG ☒ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☒ SCRAP ☐

			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					KC	ALW		
DATE	1/5/71	1-15-71		1/14/71	1/6/70	1/5/71	1/15/71	1-7-71
		VDI						

PRIORITY: C

DRAWING TITLE: ZEE ~ DESCENT STAGE ~ RH AFT BEAM PANEL ~ GOX MOD. SPT

DRAWING NO.: LDW280-18551

EO NO.: A4

ISSUED BY LIAISON ART WILSON X86755 SECTION VDI GROUP NO. 0335 PL 025

01
NAS 9-1100

LDW280-18552

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54531	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-54531	LM-10(40)	1
PART NO. LDW280-18552-13		GAEC SCH NO. 50-6	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LTA-3DR/1(460)	1EA
		LTA-11(23)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60628	LM-10(40)	1EA
PART NO. LDW280-18552-11,-15, -16,-17 & -18		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -18

GRUMMAN REL INFO

PRIM NO.	JK(001)	
207	ME-16	10/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3994
CDR 10-06-69 PKG87.

CONTRACT NO. NAS 9-1100 LINE ITEM DOCUMENTATION TYPE II

DRAWN BY	E. SICK	RELIABILITY	
LAYOUT BY	R BEHAN 10-02-69 RCB		
CHECKED BY	Szalwinski 10-2-69		
GR LEADER	RC Thoyinsen		
VEH DES INT	F. Kekerpanis 10-6-69		
STRUCTURE	N. MARKELOFF 10/6/69	PROJ ENGR	10/6/69
STRUCTURE	10/6/69	REL GROUP	L. Marsh 10-6-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE - RH AFT BEAM PANEL
GOX MODULE

SIZE B CODE IDENT NO. 26512 LDW280-18552

SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18552-18	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032 × 2 × 3	T6	88	
		-17						.032 × 2 × 3			
		-16						.032 × 3 × 3			
		-15		CLIP				.032 × 3 × 3			
		-13		ANGLE				.032 × 2 × 16			
		LDW280-18552-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 × 5 × 13	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18552

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

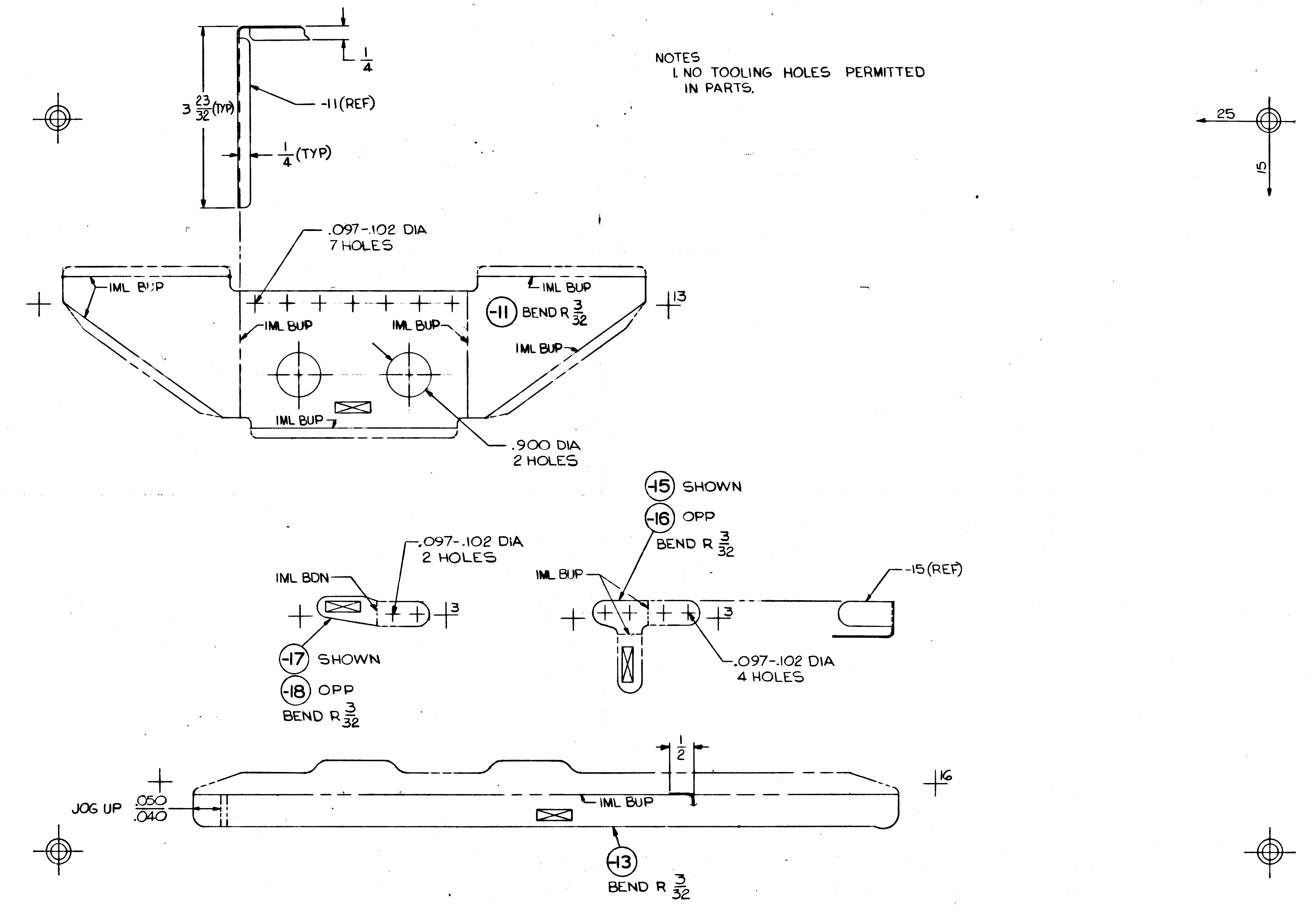
LDW280-18552

TRAM OK.
TL 3-22-67

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [redacted]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.



$3\frac{23}{32}$(TYP)
$\frac{1}{4}$
-11(REF)
$\frac{1}{4}$(TYP)
.097-.102 DIA
7 HOLES
IML BUP
IML BUP
IML BUP
IML BUP
IML BUP
IML BUP
-11 BEND R $\frac{3}{32}$
13
.900 DIA
2 HOLES
25
15
-15 SHOWN
-16 OPP
BEND R $\frac{3}{32}$
.097-.102 DIA
2 HOLES
IML BDN
3
-17 SHOWN
-18 OPP
BEND R $\frac{3}{32}$
IML BUP
-15(REF)
3
.097-.102 DIA
4 HOLES
$\frac{1}{2}$
16
JOG UP $\frac{.050}{.040}$
IML BUP
-13
BEND R $\frac{3}{32}$

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18552
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 73.3 REV 3-67

NAS 9-1100

LDW280-18552

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1737
CONTROL INFO NO. LDW28089178

REMOVE LTA-3D/R-1(460) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-60628.

PART NO. *	CHANGE NO.	DWG. NOMENCLATURE
LDW280-18552-11,-15,-16,-17,-18	A1	SEE DWG
LDW280-18600-13,-15,-16,-17,-19	A1	
LDW280-18603-11,-13,-15	A1	
LDW280-18645-1,-3	A1	SEE DWG

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 87	(5)

REASON FOR EO: PARTS NOT REQ'D FOR STATIC TEST VEHICLE

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF * BY REMOVING LTA-3D/R-1(460)

GAEC EO RELEASE: JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R-1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/22			10-21-69	10/22/69		10/23/69	10/23/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1737

10-31-69
ISSUED BY R. BEHAN x86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18553

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54633	DESIGN VERIFICATION TEST (70)	2
↑	↑	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7 37	2
		LM-6(36)	2
		LM-5(35)	2
↓	↓		
LM	LDW280-54633	TM-5/R(65)	2

PART NO. LDW280-18553-11

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —
LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. JK(001)
207 MP-16 10/5/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 CCA586
LCD 3075 CCA586
(ECP A020R)
(LCD1433)

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY R. CLARK
LAYOUT BY R. CLARK
CHECKED BY D. FASS DF 10-2-68
GR LEADER GH Thoyer 9/30/68
VEH DES INT 10/1/68
STRUCTURE NM 10/1/68
STRUCTURE 10/1/68
WEIGHTS
RELIABILITY
PROJ ENGR Pisaturo 10/1/68
REL GROUP 10-4-68

(F) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ALSEP
STRAP OPERATION

SIZE B
CODE IDENT NO. 26512
LDW280-18553
SCALE NONE
SHEET 1 OF 3

ENG 77.1 12-65

CDR 10-11-68

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18553-11	E	PLATE	CRES. SH	MIL-S-25043	17-7 PH	.020 X 1/2 X 1 1/2	NONE	SEE NOTE #1	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18553
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

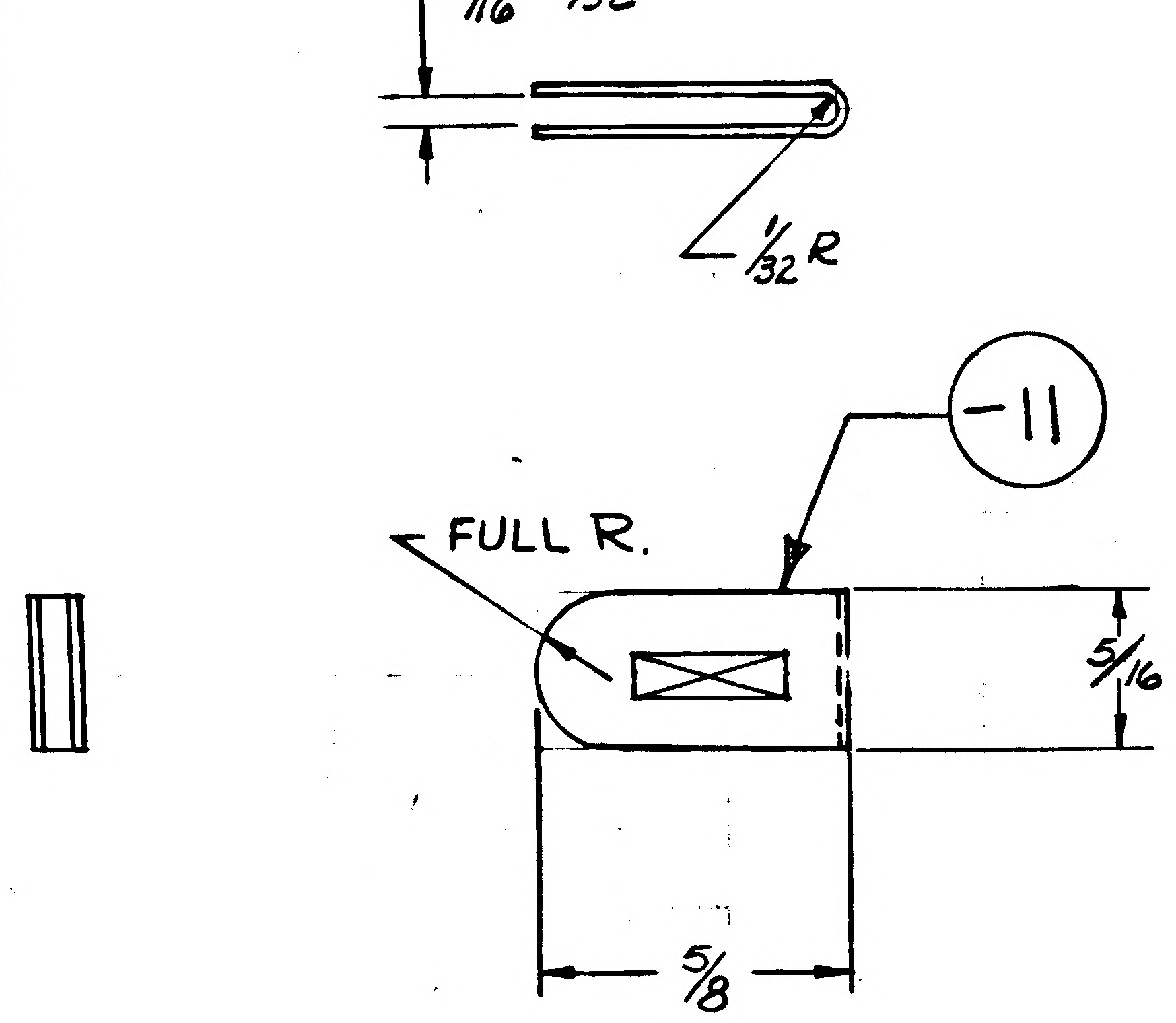
NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒.	✓

NOTE

1. DRY FILM LUBE PER LSP-14-10300, TYPE II.



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18553

SCALE 2X SIZE
SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	↑
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538 ✓	A1	
-18550 ✓	A1	
-18553 ✓	A1	
-18557	A3	↓
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/16/69			4-2-69	4/15/69		4/16/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1348

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280 | EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18531	SEE DWG	B2
✓ 550		A2
✓ 553		A2
557		A4
558		A6
560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PJT				N		Bauman
DATE	7-29-69			7/29/69	8-2-69		8/4/69 8-15-69
	VDI						

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18555

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
			1
LM	LDW280-60519	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
LM	LDW280-60519	LM-10(40)	1

PART NO. LDW280-18555-11 | GAEC SCH NO.

WORK PKG. FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED
LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. 207 | SP601 | ME-16 | 11-3-69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS - ANGLES
.XX=±.03 .XXX=±.010 ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994 PKG 68

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY E. BECKETT 10-27-69
LAYOUT BY A. TIENKEN
CHECKED BY D. FASS 10-29-69
GR. LEADER Thorwsen 10-30-69
VEH. DES. INT. F. DeKerpins 10-30-69
STRUCTURES NM 10/31/69
STRUCTURES 10/31/69
PROJ ENGR 11/1/69
REL GROUP L. Marsh 11/3/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK
⑤

TEE
DESCENT STAGE, QUAD IV
UPPER DIAGONAL

SIZE B | CODE IDENT NO. 26512 | LDW280-18555
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 11/3/69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18555-11	E	TEE	AL ALY EXTR	QQ-A-200/11	7075-T6511	GS183A33DG×45.5	NOTE 1		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18555
SCALE NONE
SHEET 2.00

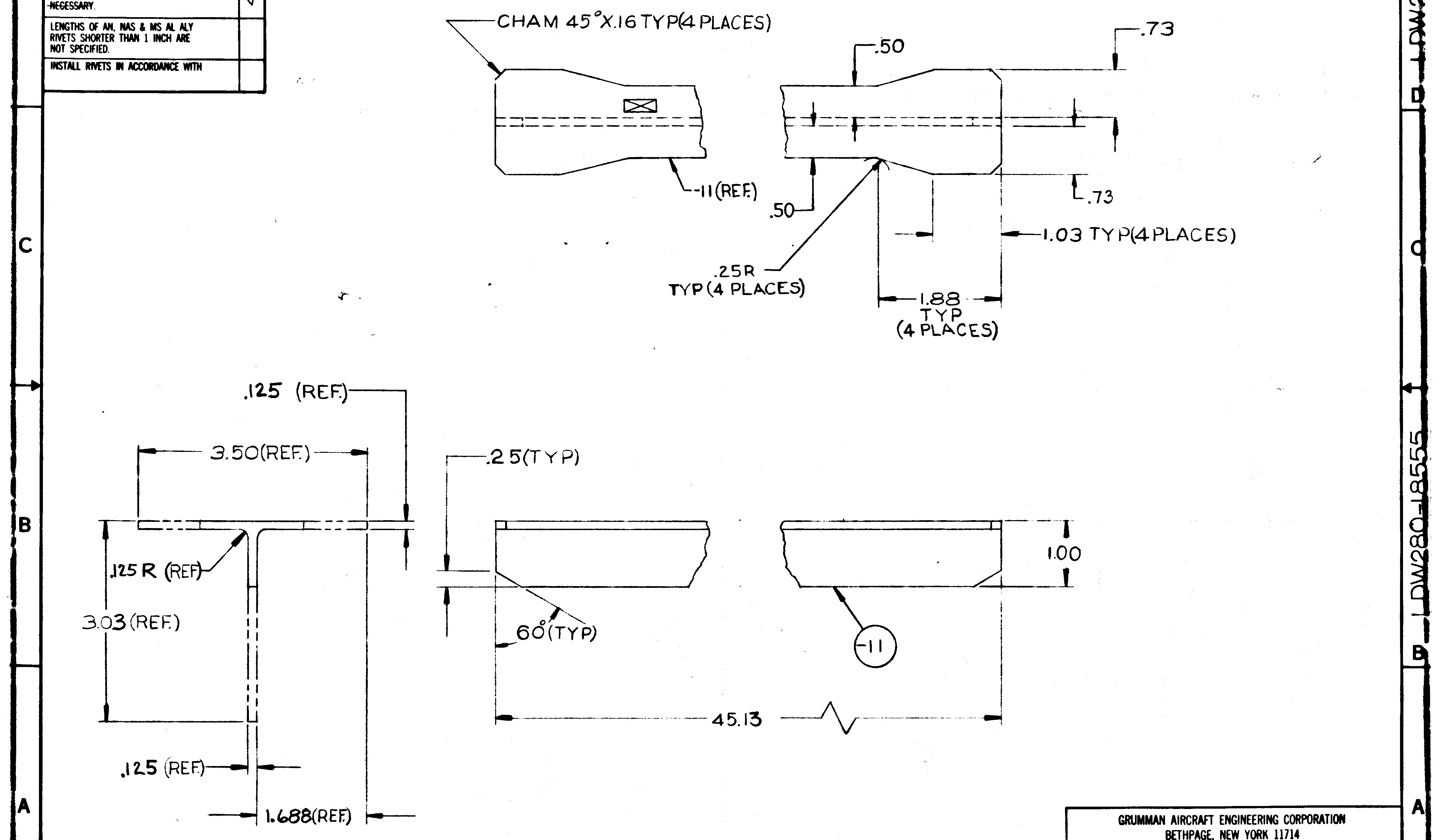
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. FOR-11 AGE FROM T6511 CONDITION TO T73 TEMPER BY AGING FOR 7.5 TO 8.5 HOURS AT 350°F ±10°F. THEN SULFURIC ACID ANODIZE PER MIL-A-8625 TYPE II. AFTER ANODIZING PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP14-4305



CHAM 45°X.16 TYP(4 PLACES)
-11(REF.)
.50
.73
.50
.73
.25R
TYP (4 PLACES)
1.03 TYP(4 PLACES)
1.88
TYP
(4 PLACES)
.125 (REF.)
3.50(REF.)
.25(TYP)
.125 R (REF.)
3.03(REF.)
60°(TYP)
1.00
-11
45.13
.125 (REF.)
1.688(REF.)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18555

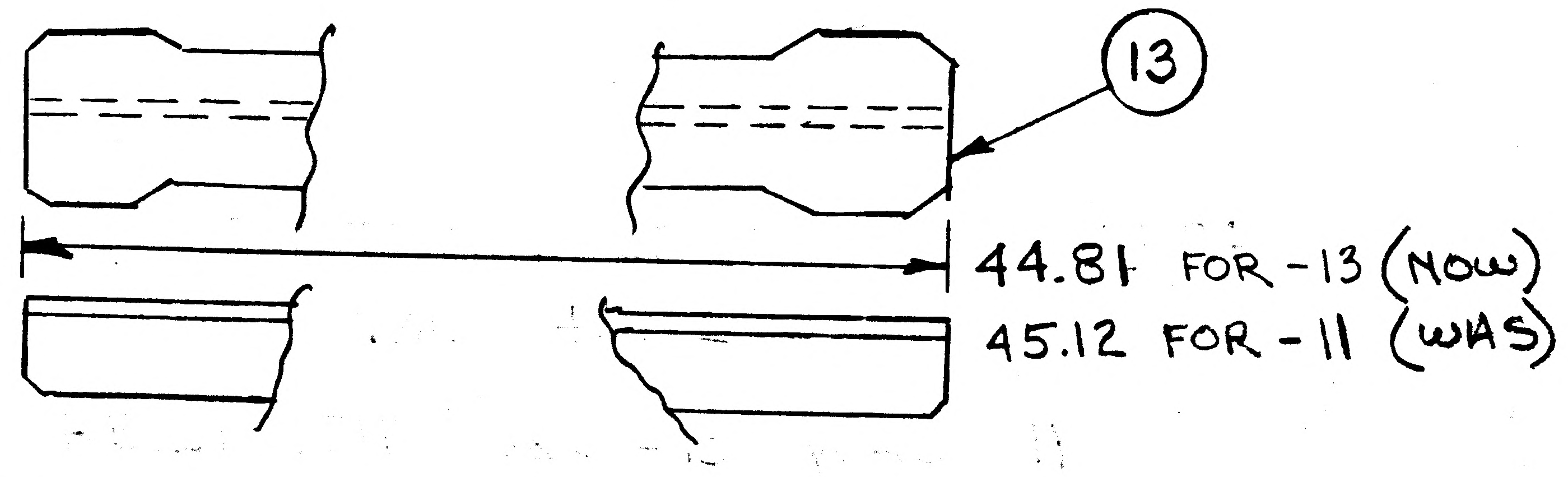
SCALE FULL SHEET 3

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEE   G ORDER

DWG. NO. LDW280-18555 EO NO. A1
CONTROL INFO NO. LDW280B9315



1. ADD -13 TO FIELD & MOD BLOCK, IDENTICAL TO -11 EXCEPT AS NOTED
(EFFECTIVITY FOR -13 LM-10(40) THRU LM-14(44) LTA-11(23) TM-11(50) & LTA-3DR/1(460).
2. SCRAP -11 (FOR ALL EFF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 68 (5)

REASON FOR EO: TO MAKE TEE COMPATIBLE WITH UPPER DIAGONAL

DESCRIPTION OF EO: ADDED -13, REMOVED -11

GAEC EO RELEASE: 11-7-9; 11/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		LTA-11(23)	TM-11(50)
		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -11

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	11/7/69			11-7-69	11/7/69		11/7/69	11/9/69
	VD1							

PRIORITY C

DRAWING TITLE: TEE-DESCENT STAGE UPPER DIAGONAL STRUT, QUAD IV

DRAWING NO. LDW280-18555 EO NO. A1

COR DATE 11-7-69

ISSUED BY TIENKEN / THORJUSEN SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18557

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54632	LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5 (35)	2
LM	LDW280-54632	LM-4 (34)	2

PART NO. LDW280-18557-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54632	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
LM	LDW280-54632	LM-4 (34)	1

PART NO. LDW280-18557-11-13-17 -19-21&-23

WORK PKG FUNCTION NO 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -23

GRUMMAN REL INFO

PRIM NO. 207 JK/oc

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ± 1/2°

D ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE V

LCD2011(665)

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 3-8-68	RELIABILITY	
LAYOUT BY	G. BARNES 3-6-68		
CHECKED BY	3-11-68		
GR LEADER	3/13/68		
VEH DES INT	3/14/68		
STRUCTURES	3/21/68	PROJ ENGR	Lusster 3/21/68
STRUCTURES	3/21/68	REL GROUP	Marsh 3-21-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL DESCENT STAGE R.H.
FWD BEAM PANEL PROPELLANT
QUANTITY GUAGING SYSTEM SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18557

SCALE NONE | SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR 3/22

01

NAS 9-1100

	PART NO.	NO.	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	MAT SPEC	FINAL SPEC	STOCK SIZE	PROCESS SYM	PROC. NO.	ZONE
	LDW230-18557-[illegible]			BLOCK	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	NONE	NONE	
	[illegible]			BLOCK	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	NONE	NONE	
	[illegible]			TEE	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	NONE	NONE	
	[illegible]			CHANNEL	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	[illegible]			CHANNEL	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	[illegible]			TEE	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	NONE	NONE	
	LDW230-18557-[illegible]			CHANNEL	AL ALLOY [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

SYM OR NO.	PROCESS SYM OR PROC. NO.	GRUMMAN SPEC OR MIL-STD SPEC	SYM OR NO.	PROCESS SYM OR PROC. NO.	GRUMMAN SPEC OR MIL-STD SPEC	SYM OR NO.	PROCESS SYM OR PROC. NO.	GRUMMAN SPEC OR MIL-STD SPEC
						[illegible]	[illegible]	[illegible]
						[illegible]	ANODIZE	[illegible]

IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L.I. NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW230-18557

SCALE NONE SHEET [illegible]

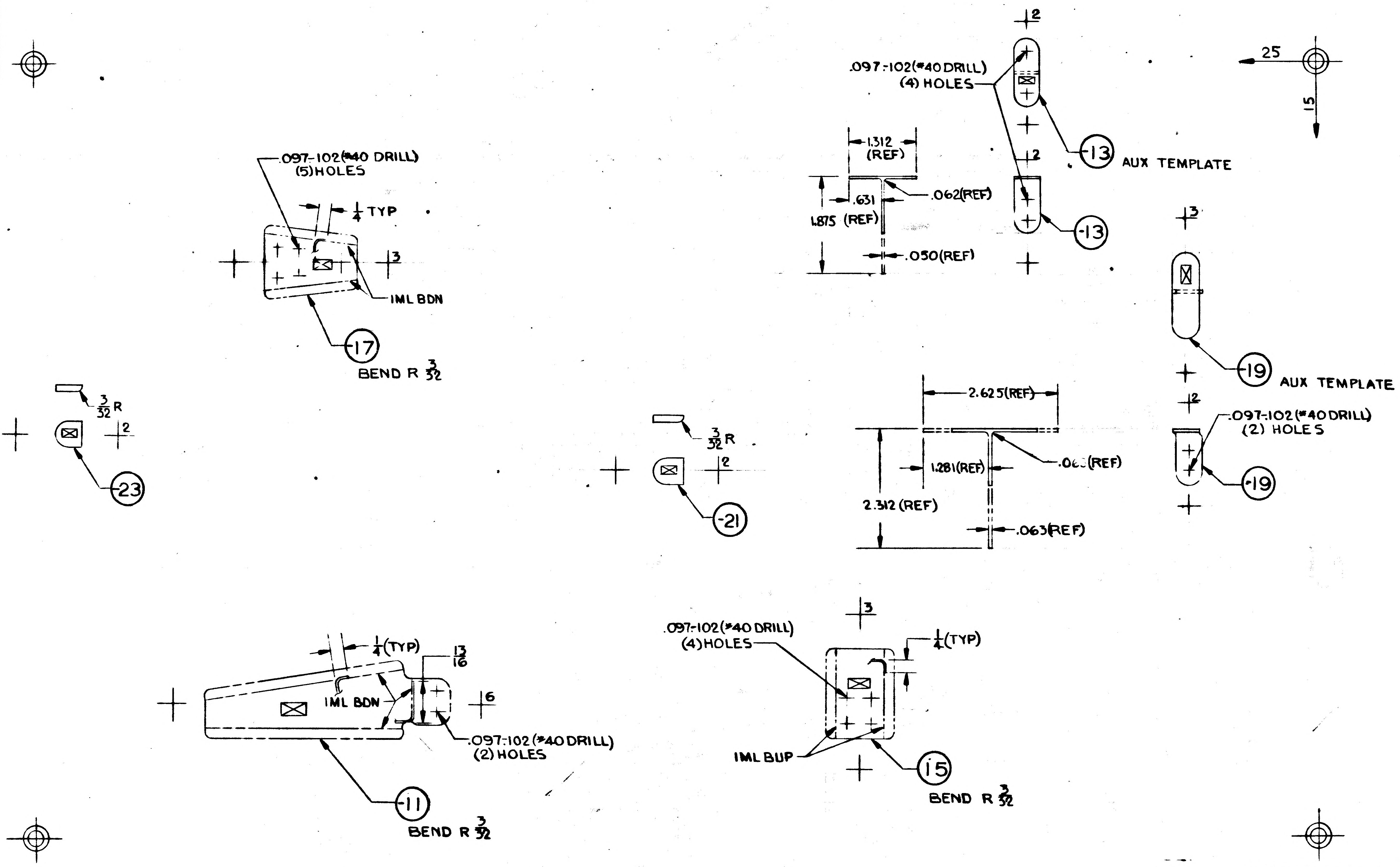
01

NAS 9-1100

LDW280-18557

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS.



25
15
.097-.102(#40 DRILL)
(4) HOLES
2
-13
AUX TEMPLATE
1.312
(REF)
.631
1.875 (REF)
.062(REF)
.050(REF)
-13
.097-.102(#40 DRILL)
(5)HOLES
1/4 TYP
3
IML BDN
-17
BEND R 3/32
3
-19
AUX TEMPLATE
2.625(REF)
1.281(REF)
.06_(REF)
2.312 (REF)
.063(REF)
2
.097-.102(#40 DRILL)
(2) HOLES
-19
3/32 R
2
-23
3/32 R
2
-21
.097-.102(#40 DRILL)
(4)HOLES
3
1/4(TYP)
IML BUP
-15
BEND R 3/32
1/4(TYP)
13/16
IML BDN
6
.097-.102(#40 DRILL)
(2) HOLES
-11
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18557
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18557
EO NO. A1
CONTROL INFO NO. LDW280B2817

FOR -13,-19,-21 & -23
FINISH #88 WAS FINISH "NONE"

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2011 PKG17 CCA668 (5)

REASON FOR EO: FINISH INCORRECT

DESCRIPTION OF EO: ADDED FINISH 88 TO -13,-19,-21 & -23

GAEC EO RELEASE: VK 4/1/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-4(-41) THRU LM-11(4[illegible])	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY									
DATE	3/5/68			3/28/68	3/28/68		3/29/68	3-30-68	
B	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~	

PRIORITY: C
DRAWING TITLE: CHANNEL U/S RH FWD BEAM PANEL PROPELLANT QTY GUAGING SYST SUPT
DRAWING NO. LDW280-18557
EO NO. A1

ISSUED BY G. BARNES / P. THO[illegible]SEN SECTION VDI GROUP NO. 335 PL 25

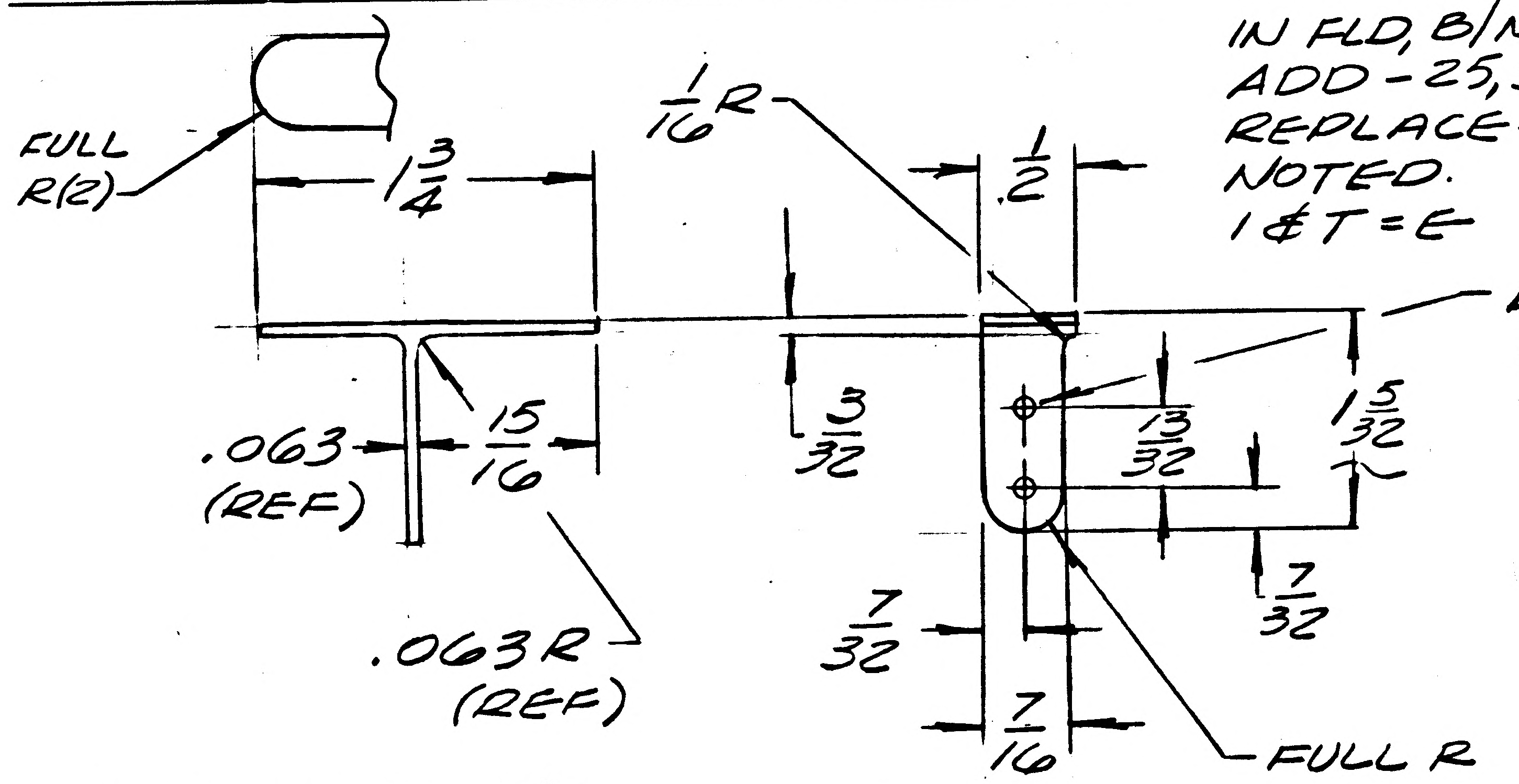
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18557 | EO NO. A2

CONTROL INFO NO. LM-5-19692



IN FLD, B/M, & MOD/BLK
ADD -25, SAME AS & TO
REPLACE -19 EXCEPT AS
NOTED.
1 & T = E

DRILL #50 (.069-.074)
(2) HOLES

NOTE DIMS ARE
NOT TO BE ADDED
TO DWG - LOFT PART.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD2011 (CCA 668,	(5)

REASON FOR EO: OPP HAND & LARGER PART TO PICK UP EXISTING RIVETS ON INSTL.

DESCRIPTION OF EO: IN FLD, B/M, & MOD/BLK ADDED -25, REMOVE -19

GAEC EO RELEASE: VC

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4 (34)	THRU
		LM15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-19	DATE	4/10			2	4/4/68	4/8/68	4/10	4/9/68
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL, D/S RH FWD BEAM PNL PROP QUAN. GUAG. SYS SPT	LDW280-18557	A2

ISSUED BY LIAISON M.D. REYES X36755 SECTION VD1/P. THORJUSEN GROUP NO. 335 PL 25

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538 ✓	A1	
-18550 ✓	A1	
-18553 ✓	A1	
-18557 ✓	A3	
LDW280-18558	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 4/16/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/16/69			4-2-69	4/18/69		4/14/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1348

ISSUED BY 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓ LDW280-18531	SEE DWG	B2	
✓ 550		A2	
✓ 553		A2	
✓ 557		A4	
558		A6	
560		A4	
561		A4	
562		A6	
LDW280-18563	SEE DWG	A4	

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

	APPROVED BY	DATE
VDI	PJT	7-29-69
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		7/29/69
STRESS GROUP	N	8-2-69
LIAISON ENGRG		
PROJ ENGRG		8/4/69
~~GOVT~~	Bauman	8-15-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1556

8-24-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-68

DWG. NO. LEO 280
EO NO. 1683
CONTROL INFO NO. LDW280B8515

FOR THE FOLLOWING DWG'S & DASH NOS* REMOVE LM-10 (40) THRU LM-14(44) & LTA-11 (23) REQM'TS. WITH THE NOTED NEXT ASSY, (WAS) LM-4(34) THRU LM-14(44). & LTA-11 (23)

DWG. NO.	DASH NO*	NEXT ASSY	TITLE	CHG. NO.
-17453	-25	-54632	SEE DWG	B7↓
-17453	-23			
-13557	-23			
	-21			
	-25			A5↓
	-17			
	-15			
	-13			
LDW280-18557	-11	LDW280-54632	SEE DWG.	

DETAIL SPEC REQ ☐
CL II ENGRG CHG ☐
CL I ENGRG CHG ☐
✓ LCD3994 PKG 82
(5)

REASON FOR EO: RELOCATED PQGS SPT INSTL TO PROVIDE CLEARANCE TO H_2O TANK.

DESCRIPTION OF EO: FOR DASH * REMOVED LM-10(40) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE: LR 9-12-69; JK 9/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
LM		LM-14(44) &	
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PSt				WH		
DATE	9-6-69			9/5/69	9/8/69		9/11/69

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1683

9-26-69
ISSUED BY Z. FRANK / G. HANSMANN X87222 SECTION VDI / P. THORJUSEN GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54586	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54586	LM-4 (34)	1 EA
PART NO. LDW280-18558-11, -13, -15 & -17		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 SK(001) mP-16-1/5/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433, CCA586

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A. SCHMADTKE 3-12-63

LAYOUT BY R. GORTLER 3/26/68

CHECKED BY WCG 3/27/68

GR LEADER 4-1-68 Thorjesen

VEH DES INT 4/2/68

STRUCT M.S. 4/2/68

STRUCT 4/2/68

WEIGHTS

RELIABILITY

PROJ ENGR J. Pusateri 4/4/68

REL GROUP 4-5-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-QUAD II-THERMAL DOOR DRIVE~RH PANEL~PULLEY SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18558

SCALE NONE

SHEET 1.00 OF 3

CDR. 3-22-68

ENG 77.1 9-64

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18558 -17	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 3 X 3	T6	88	
								-15		ANGLE				.032 X 2 X 2			
								-13		CHANNEL				.032 X 5 X 23			
								LDW280-18558-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 X 4 X 23	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088						
88	ANODIZE	LSP14-9030						

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18558

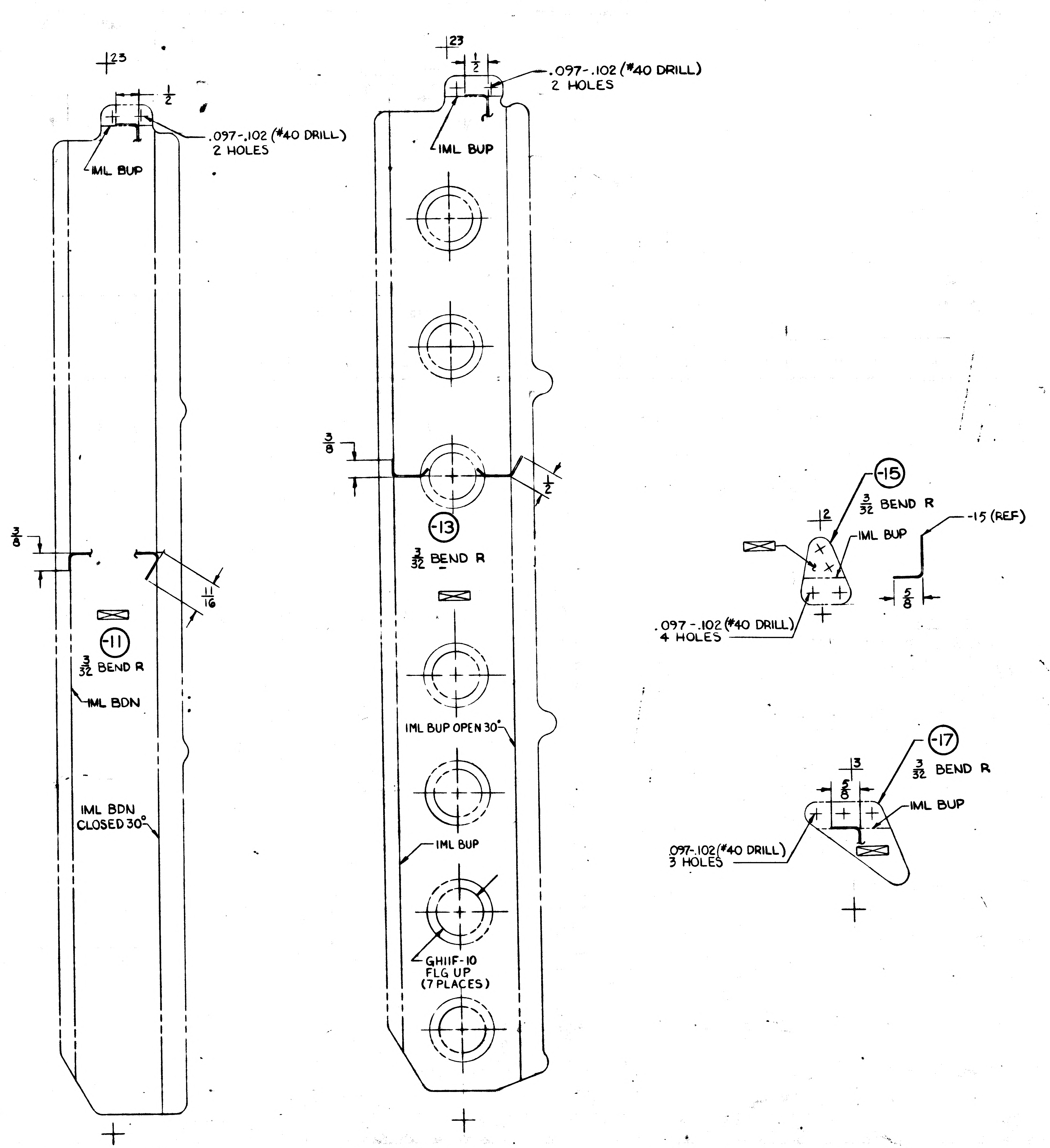
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



.23
1/2
.097-.102 (#40 DRILL)
2 HOLES
IML BUP
3/8
11/16
-11
3/32 BEND R
IML BDN
IML BDN
CLOSED 30°
.23
1/2
.097-.102 (#40 DRILL)
2 HOLES
IML BUP
3/8
1/2
-13
3/32 BEND R
IML BUP OPEN 30°
IML BUP
GH11F-10
FLG UP
(7 PLACES)
-15
3/32 BEND R
.12
IML BUP
-15 (REF)
5/8
.097-.102 (#40 DRILL)
4 HOLES
-17
3/32 BEND R
.13
5/8
IML BUP
.097-.102 (#40 DRILL)
3 HOLES

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-18558	
MODEL OR END ITEM	SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18558

ENG 32.1 REV 3-65

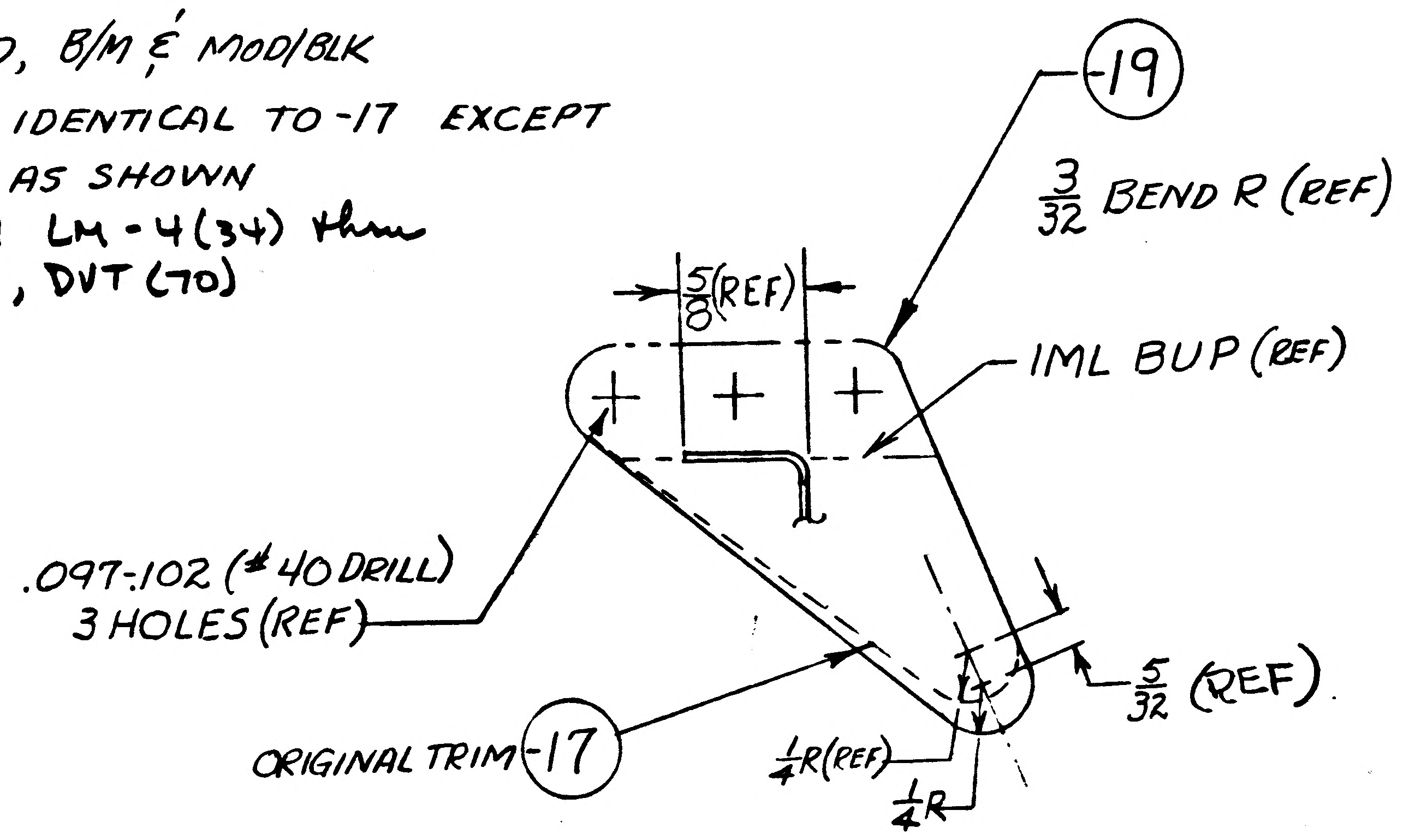
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18558 | EO NO. A1

CONTROL INFO NO. LM-2-4688

IN DWG/FLD, B/M & MOD/BLK
CREATE -19 IDENTICAL TO -17 EXCEPT
WITH TRIM AS SHOWN
DELETE -17 LM-4(34) thru
LM-15(45), DVT(70)



-19
$\frac{3}{32}$ BEND R (REF)
$\frac{5}{8}$(REF)
IML BUP (REF)
.097-.102 (#40 DRILL)
3 HOLES (REF)
$\frac{5}{32}$ (REF)
ORIGINAL TRIM -17
$\frac{1}{4}$R(REF)
$\frac{1}{4}$R

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	CCA586 LCD1433

REASON FOR EO
CHANGE REQD TO PROVIDE ADEQUATE
EDGE DISTANCE FOR RIVET.

DESCRIPTION OF EO
IN DWG/FLD, B/M & MOD/BLK
ADDED -19 EFF LM-4(34) THRU LM-15(45) & DVT(70)
DELETED -17 EFF LM-4(34) THRU LM-15(45) & DVT(70)

GAEC EO RELEASE (2) C
VC

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO |
DISPOSITION OF PARTS: REWORK | SCRAP -17 ✓

APPROVED BY	JAP			—	MBS	Ctf	JAP		
DATE	5/11/68			—	5/7/68	5/6/68	5/11/68	5-7-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C

DRAWING TITLE: CHANNEL
DESCENT STAGE - QUAD II - THERM. DOOR
DRIVE - RH PANEL - PULLEY SUPPORT

DRAWING NO.: LDW280-18558

EO NO.: A1

ISSUED BY LIAISON GLENN BRONSON 3604 SECTION V. D. I GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 951
CONTROL INFO NO. LDW280B3379

FOR THE FOLLOWING PARTS ADD TH-5/R(65)REQMTS NEXT ASSY LDW 280-54586 FOR THE QUANTITIES NOTED.

DWG NO. (*)	TITLE	REQ'D/MOD.	CHANGE NO.	
LDW280-17709-23	SEE DRAWING	1	B8	✓
LDW280-17710-11 -13 -15 -17 -19		1 1 2 4 2	A9	✓
LDW280-17739-15		4	C6	✓
LDW280-17887-15 -17		1 1	B5	✓
LDW280-18368-13-1		1	A5	✓
LDW 280-18369-11 -13 -15 -16 -21 -23		1 1 1 1 1	A3	✓
LDW280-18458-15		1	A5	✓
LDW 280-18515-11 -13		1 1	B1	✓
LDW280-18558-11 -13 -15 -17		1 1 1 1	A2	✓
LDW280M17969-12		1	A2	
LDW280M71500-11		1	A1	
LDW280M71501-11		3	A1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3075 CCA586 PKG 2J (5)

REASON FOR EO: ADD TH-5(65)REQMTS.

DESCRIPTION OF EO: ON (*) ADDED TH-5/R(65)REQMTS.

GAEC EO RELEASE: C JK 5/18/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		TH-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)
APPROVED BY: V.D.I. 5/13/68 | SUPPORT | RELIAB. GROUP | GROUP LEADER 5-13-68 | STRESS GROUP 5/1[illegible] | LIAISON ENGRG | PROJ ENGRG 5/13/68 | ~~GOVT~~ 5-17-68

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 951

5-17-68 ISSUED BY G. HANSMANN X3352 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18558	EO NO. A3
CONTROL INFO NO LDW 28?B 3804	

REVISION OF EO A2

-17 SHOULD BE -19 1 REQ'D/MOD, N/A LDW280-54586

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3075 CCA586 PKG 2J (5)

REASON FOR EO: REVISE DETAIL REQMTS TO AGREE WITH NEXT ASSY.

DESCRIPTION OF EO: REF EO A2: -19 WAS -17

GAEC EO RELEASE: C JK 6/12/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	[illegible]			GR. PBT	WM		JaP	Bauman
DATE	6/6/68			6-5-68	6/7/68		6/7/68	6-17-68
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D.S. ~ QUAD II ~ THERMAL DOOR DRIVE RH PANEL ~ PULLEY SUPPORT	LDW280-18558	A3

6-7-68
ISSUED BY T. COTTER x 86018/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

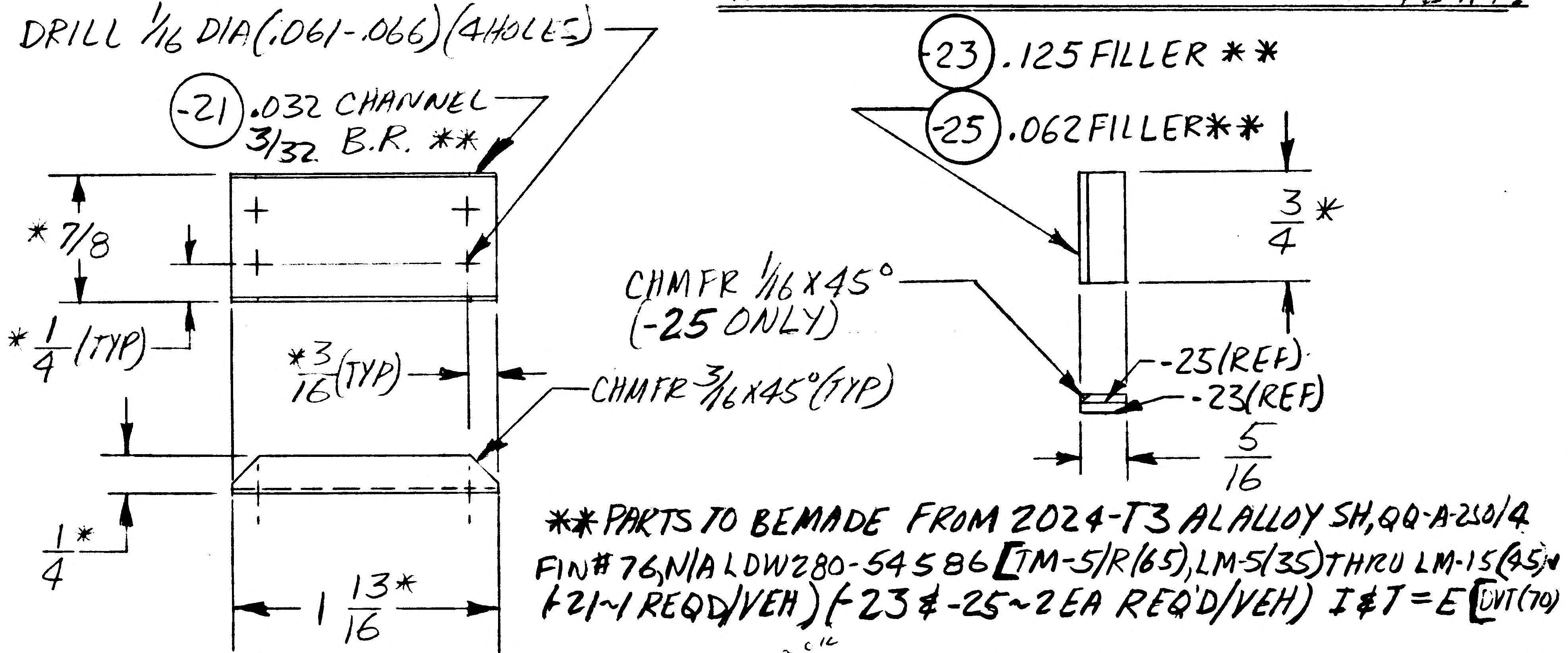
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18558	EO NO. A4
CONTROL INFO NO. LDW280B5673	

ADD THE FOLLOWING PARTS TO F/D & B/M:



DRILL 1/16 DIA (.061-.066) (4 HOLES)
(-21) .032 CHANNEL 3/32 B.R. **
(-23) .125 FILLER **
(-25) .062 FILLER **
*7/8
*1/4 (TYP)
*3/16 (TYP)
CHMFR 3/16 X 45° (TYP)
CHMFR 1/16 X 45° (-25 ONLY)
3/4 *
-25 (REF)
-23 (REF)
5/16
1/4 *
1 13/16 *

**PARTS TO BE MADE FROM 2024-T3 AL ALLOY SH, QQ-A-250/4 FIN #76, N/A LDW280-54586 [TM-5/R(65), LM-5(35) THRU LM-15(45)] (-21~1 REQD/VEH) (-23 & -25~2 EA REQ'D/VEH) I & T = E [DVT(70)

* PARTS TO BE LOFTED, DIM'S FOR MANUFACTURE ONLY (5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3075 CCA 586; LCD 1433 ECP A020R CCA 586

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PREVENT DOOR RELEASE CABLE FROM HANGING UP ON STRUCTURE	ADDED -21, -23 & -25.	JK 10/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70), TM-5/R(65) LM-5(35) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP								
✓		NOT	REQD	APPROVED BY	JAP					JAP	
				DATE	9/30/68			9/30/68		9/30/68	10-3-68
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT.

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ D/S ~ QUAD II ~ THERMAL DOOR DRIVE ~ R/H PNL ~ PULLEY SPT.	LDW280-18558	A4

C.D.R. 10/11/68

ISSUED BY J. J. ROGERS / P. THORNUSEN X87222 SECTION VEH DES & INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1348
CONTROL INFO NO. LDW280B7439

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18523 ✓	A5	SEE DWG
-18524 ✓	A3	
-18525 ✓	B3	
-18530 ✓	A2	
-18531 ✓	B1	
-18538 ✓	A1	
-18550 ✓	A1	
-18553 ✓	A1	
-18557 ✓	A3	
LDW280-18558 ✓	A5	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 3 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD.

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG.	GOVT
APPROVED BY				OSF	WH			
DATE	4/1/69			4-2-69	4/1/69		4/4/69	4/16/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1348

052869

ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 EO NO. 1556
CONTROL INFO NO. LDW 280B 8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18531	SEE DWG	B2
550		A2
553		A2
557		A4
558		A6
560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SUB 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PBT				N			Bauman
DATE	7-29-69			7/29/69	8-7-69		8/4/69	8-15-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1660
CONTROL INFO NO. LDW280B 8446

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS FOR THE NOTED NEXT ASSY. QUANTITY SAME AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280-17709 ✓	SEE DRAWING	LDW280-54586	C3
-17887 ✓		-54586	C3
-18515 ✓		-54586	B4
-18368 ✓		-54586	B3
-18369 ✓		-54586	A7
-18458 ✓		-54679	B3
-18458 ✓		-54586	
18558 ✓		-54586	A7
LDW280 M18022		-54679	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 4,7, (5)

REASON FOR EO: ADDITION OF S.E.Q. BAY FOR TEST ARTICLE

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SUB 8-22-69 JK 9/8/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NO R'D SCRAP

APPROVED BY	PST				N/A			
DATE	8-8-69			8/11/69	8/12/69		8/12/69	8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1660

8-27-69
ISSUED BY F. OLIVERI EXT 86098 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18560

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		DESIGN VEREFICATION TEST (70)	1 EA
LM	LDW280-54679	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54679	LM-4 (34)	1 EA

PART NO. LDW280-18560-11-13-15-17 & -19 | GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED
LAST DASH NO. USED -19
GRUMMAN RELᶜ INFO
PRIM NO. JC(001)
207 mP-16 3/27/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 (CCA 586)
O.K.

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY A. LITVINOFF 3-19-68
LAYOUT BY J. LANG 3-19-68
CHECKED BY 3-20-68
GR LEADER 3/21/68
VEH DES INT 3/22/68
STRUCTURES 3/26/68
STRUCTURES 3/26/68
WEIGHTS
RELIABILITY
PROJ ENGR J. Pusateri 3/26/68
REL GROUP 3-27-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ QUAD II ~ UPPER DECK ~ R.H. IDLER PULLEY SPT.

SIZE B | CODE IDENT NO. 26512 | LDW280-18560
SCALE NONE | SHEET 1.00 OF 3.00

CDR 3-22-68

ENG 77.1 12-65

01 C NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18560-19	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032×3×8	T6	88	
		↕ -17	↕	ANGLE	↕	↕	↕	.032× [illegible]×4	↕	↕	
		-15		ANGLE				.032×2×4			
		-13		BRACKET				.032×5×5			
		LDW280-18560-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	032×5×5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18560

SCALE NONE

SHEET 2.00

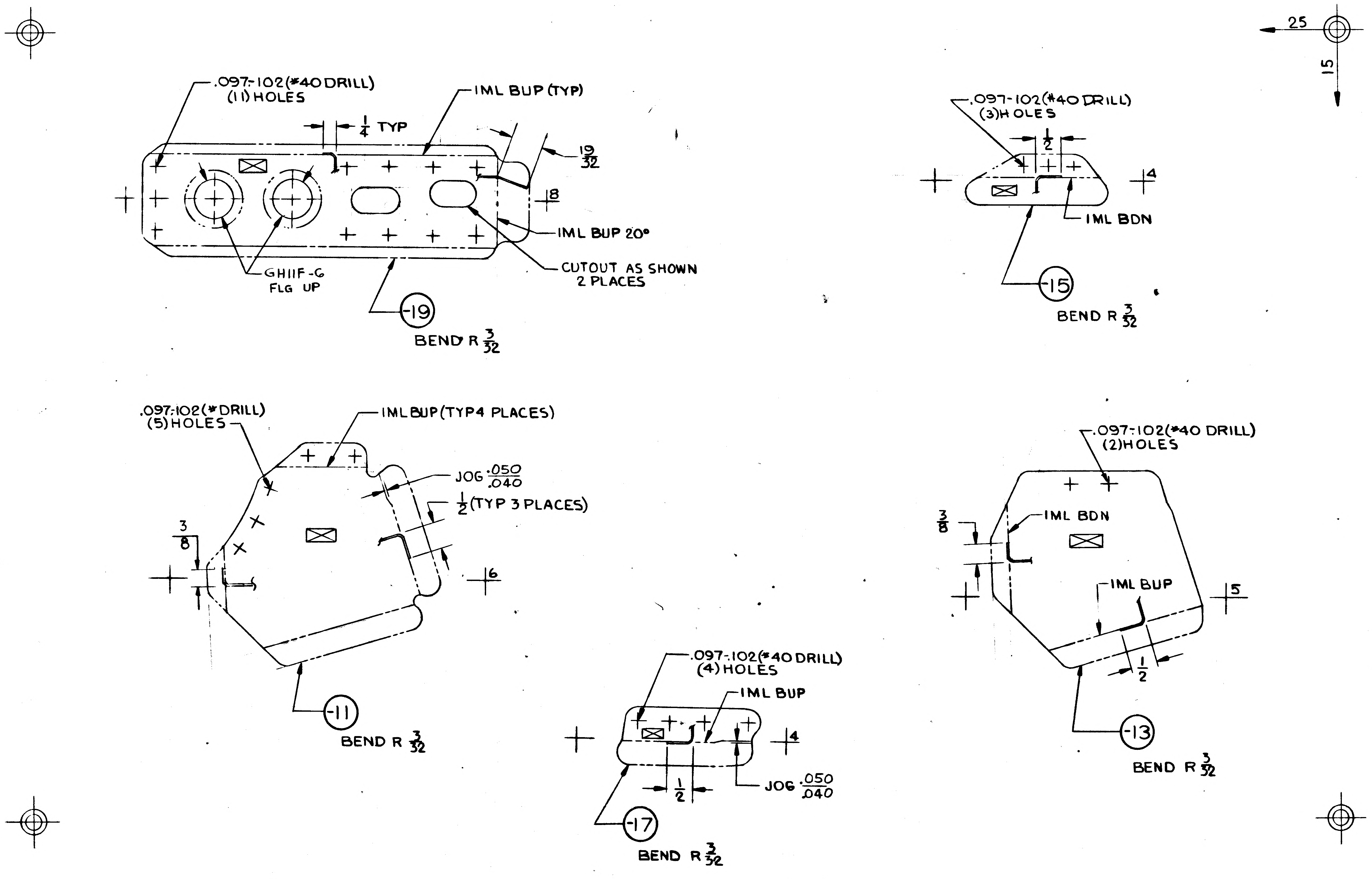
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18560

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



.097-.102 (#40 DRILL) (11) HOLES
IML BUP (TYP)
1/4 TYP
19/32
8
IML BUP 20°
CUTOUT AS SHOWN 2 PLACES
GH11F-6 FLG UP
-19
BEND R 3/32
.097-.102 (#40 DRILL) (3) HOLES
1/2
4
IML BDN
-15
BEND R 3/32
25
15
.097-.102 (# DRILL) (5) HOLES
IML BUP (TYP 4 PLACES)
JOG .050/.040
1/2 (TYP 3 PLACES)
3/8
6
-11
BEND R 3/32
.097-.102 (#40 DRILL) (4) HOLES
IML BUP
4
1/2
JOG .050/.040
-17
BEND R 3/32
.097-.102 (#40 DRILL) (2) HOLES
3/8
IML BDN
IML BUP
5
1/2
-13
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18560

SCALE FULL
SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

K2

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 950
CONTROL INFO NO. LDW280B3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65)REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19		SEE DWG	4	A2 ✓
-21			1	
-23			1	
-25			1	
-18374-27			1	
-18375-11			1	A2 ✓
-12			1	
-13			2	
-14			2	
-15			2	
-17			4	
-18375-19			1	
-18458-11			1	A4 ✓
-13			1	
-17			1	
-19			1	
-18458-23			1	
-18460-21			1	A3 ✓
-23			1	
-25			1	
-17			1	
-18460-19			1	
-18461-21			1	A4 ✓
-22			1	
-13			2	
-15			2	
-17			1	
-18461-19			1	
-18469-11			1	A1 ✓
-13			2	
-15			2	
-17			2	
-18469-19			2	
-18470-11			1	A3 ✓
-18470-13			1	
LDW280-18470-15		SEE DWG	1	
LDW280-18470-19		SEE DWG	1	
LDW280-18470-21		SEE DWG	1	

DRAWING NO.	*	TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11		SEE DWG	1	A2 ✓
-13			1	
-15			1	
-17			1	
-18			1	
-18489-19			1	
-18506-11			1	A1 ✓
-13			1	
-15			1	
-17			1	
-18506-19			2	
-18513-11			1	A2 ✓
-13			1	
-15			1	
-17			1	
-18513-19			1	
-18560-11			1	A1 ✓
-13			1	
-15			1	
-17			1	
-18560-19			1	
-18561-11			1	A2
-13			1	
-15			1	
-17			1	
-18561-19			1	
-71512-11			1	A1
-13			2	
-15			1	
-17			1	
-71512-18			1	
M17884-13			1	A5
M17885-13			1	A3
M17890-11			1	A2
M17969-11			1	A1
M17970-11			1	A1
M17971-11			1	A1
M17972-11			1	A1
LDW280M17973-11		SEE DWG	1	A1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3075	CCA 586	PKG 2H	(5)

REASON FOR EO: ADD TM-5(65)REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65)REQMTS

GAEC EO RELEASE: 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-17-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

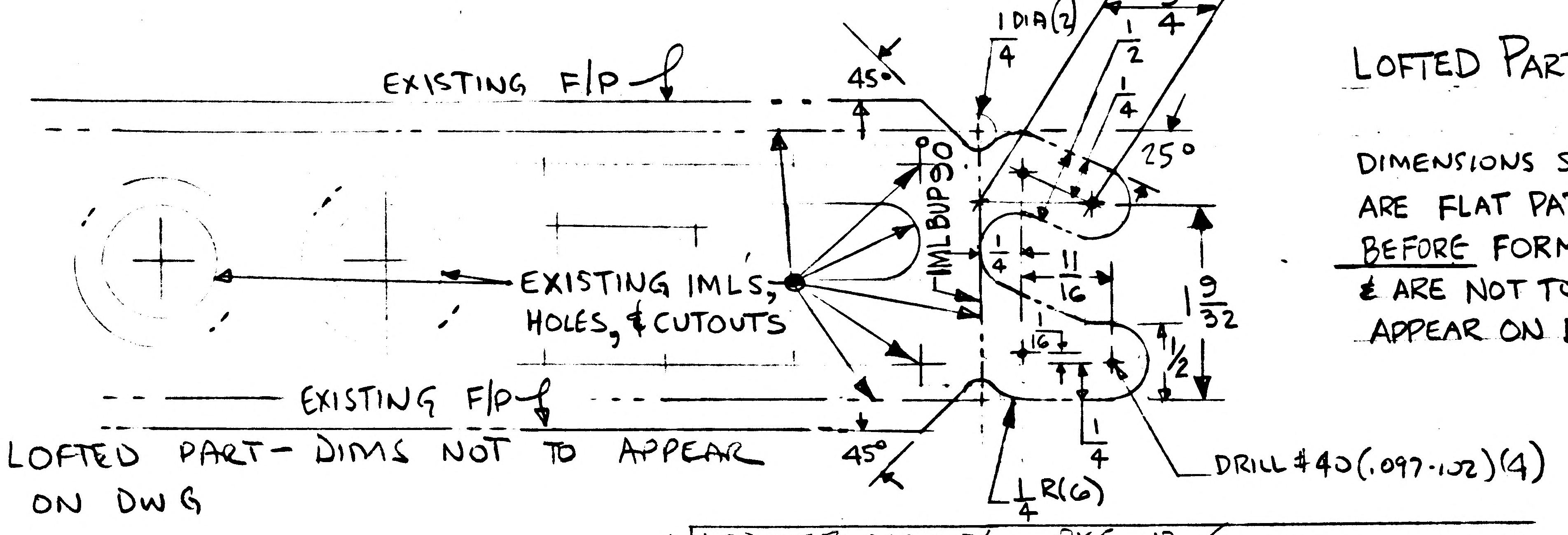
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18560 | EO NO. A2
CONTROL INFO NO. LDW280 B3842

SCRAP -19

ADD -21 IDENT. TO -19 EXCEPT AS NOTED. -21 .032 THICK, MATL 2024-T3 AL ALY BARE QQ-A-250/4, BR 3/32, N/A LDW280-54679, 1 REQD/MOD


EXISTING F/P ℄
45°
1/4 DIA (2)
3/4
1/2
1/4
25°
90
IML BUP
EXISTING IMLS, HOLES, & CUTOUTS
1/4
11/16
1 9/32
1/2
1/4
EXISTING F/P ℄
45°
1/4 R(6)
1/4
DRILL #40 (.097-.102)(4)

LOFTED PART

DIMENSIONS SHN ARE FLAT PATTERN BEFORE FORMING & ARE NOT TO APPEAR ON DWG

LOFTED PART - DIMS NOT TO APPEAR ON DWG

LCD1433 CCA 586 PKG 13 ✓
LCD 3075 CCA 586 PKG 2U

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

REASON FOR EO: TO STIFFEN SEQ BAY UPPER DECK.

DESCRIPTION OF EO: ADDED -21
SCRAPPED -19

(5) C
GAEC EO RELEASE: JK 6/12/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	
		LM-15 (45), DVT (70)	
LM		TM-5/2 (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP		UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓			-19	APPROVED BY					W/A			
				DATE	6/10/68			6/10	6/11/68		6/11/68	6-12-68

PRIORITY: C
DRAWING TITLE: BRKT~DS~QUAD II~UPR DECK~RH IDLER PULLEY SPT
DRAWING NO.: LDW280-18560
EO NO.: A2

6-15-68
ISSUED BY BELEV \ LANG 6-8-68 SECTION UDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561	A3	
-18562	A5	
-18563	A3	
-18585	B1	
-18586	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: VK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VE 1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/2/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1382

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280
EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18531	SEE DWG	B2
✓ 550		A2
✓ 553		A2
✓ 557		A4
✓ 558		A6
✓ 560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY	PBF				N		Bauman
DATE	7-29-69			7/31/69	8-2-69		8/4/69 8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1650
CONTROL INFO NO. LDW280B 8 443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 - 18374	SEE DRAWING	LDW280-54679	A6
/	-18375		-54679	A6
/	-18513		-54679	A8
/	-18489		-54679	A5
/	-18460		-54679	A6
/	-18461		-54679	B2
/	-18469		-54679	A4
/	-18470		-54679	A6
/	-18506		-54679	A5
/	M17884		-54679	B2
/	-18560		-54679	A5
	LDW 280 - 18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: SAB 8-21-69; JK 8/29/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NC R/W

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PSA				WJA			
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/28/69

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LE0280

EO NO.: 1650

8-26-69

ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18561

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	DESIGN VERIFICATION TEST (70)	1 EA
LM	LDW280-54679	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
		LM-5 (35)	1 EA
LM	LDW280-54679	LM-4 (34)	1 EA

PART NO. LDW280-18561-11-13-15 -17 & -19

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207
VK001
NP-16 3/25/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ± .020 ± 1/2°
G ...'S DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD1433 (CCA586)

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 3-10-68	RELIABILITY	
LAYOUT BY	J. LANG / G. PLANTE		
CHECKED BY	3-20-68		
GR LEADER	3/20/68		
VEH DES INT	3/22/68		
STRUCTURES	3/22/68	PROJ ENGR	3/22
STRUCTURES	FEB 3/22	REL GROUP	L. Marsh 3-25
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - QUAD II ~ UPPER DECK ~ R.H. PULLEY GUARD SPT.

SIZE B
CODE IDENT NO. 26512
LDW280-18561
SCALE NONE
SHEET 1.00 OF 3.00

CDR 3-22-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-1856'-19	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032× 3×4	T6	88	
	-17	↕		CLIP	↕	↕	↕	.032X 3X4	↕	↕	
	-15	↕		CLIP	↕	↕	↕	.032X 3X5	↕	↕	
	-13	↕		CLIP	↕	↕	↕	.032X 3×4	↕	↕	
	LDW280-18561-11	E		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032× 3×8	T6	88	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18561

SCALE NONE

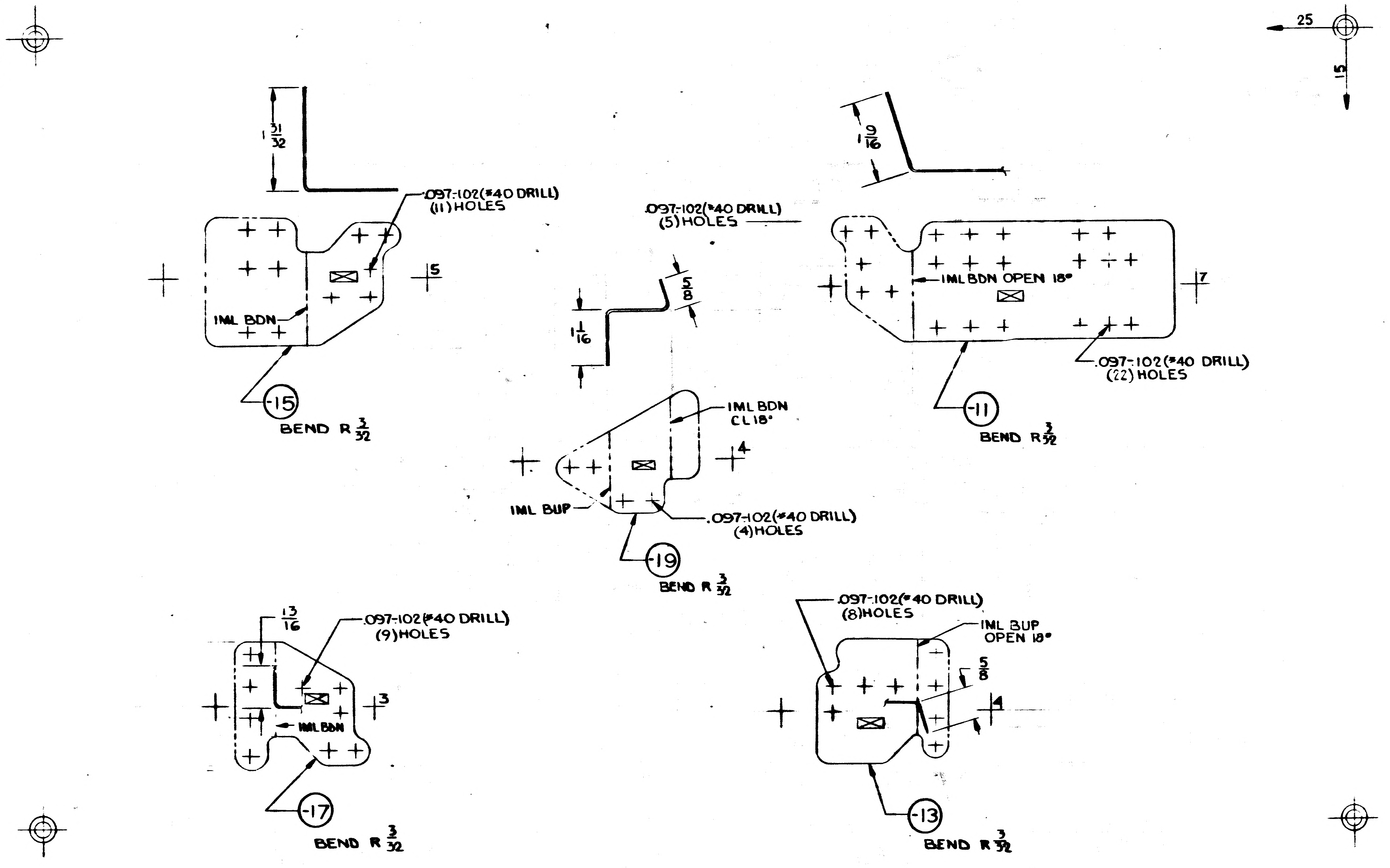
SHEET 2.00

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
$1\frac{31}{32}$
.097-.102(#40 DRILL)
(11) HOLES
5
IML BDN
-15
BEND R $\frac{3}{32}$
.097-.102(#40 DRILL)
(5) HOLES
$\frac{5}{8}$
$1\frac{1}{16}$
$1\frac{9}{16}$
IML BDN OPEN 18°
7
.097-.102(#40 DRILL)
(22) HOLES
-11
BEND R $\frac{3}{32}$
IML BDN
CL 18°
4
IML BUP
.097-.102(#40 DRILL)
(4) HOLES
-19
BEND R $\frac{3}{32}$
$\frac{13}{16}$
.097-.102(#40 DRILL)
(9) HOLES
3
IML BDN
-17
BEND R $\frac{3}{32}$
.097-.102(#40 DRILL)
(8) HOLES
IML BUP
OPEN 18°
$\frac{5}{8}$
4
-13
BEND R $\frac{3}{32}$

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18561
SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

NAS 9-1100

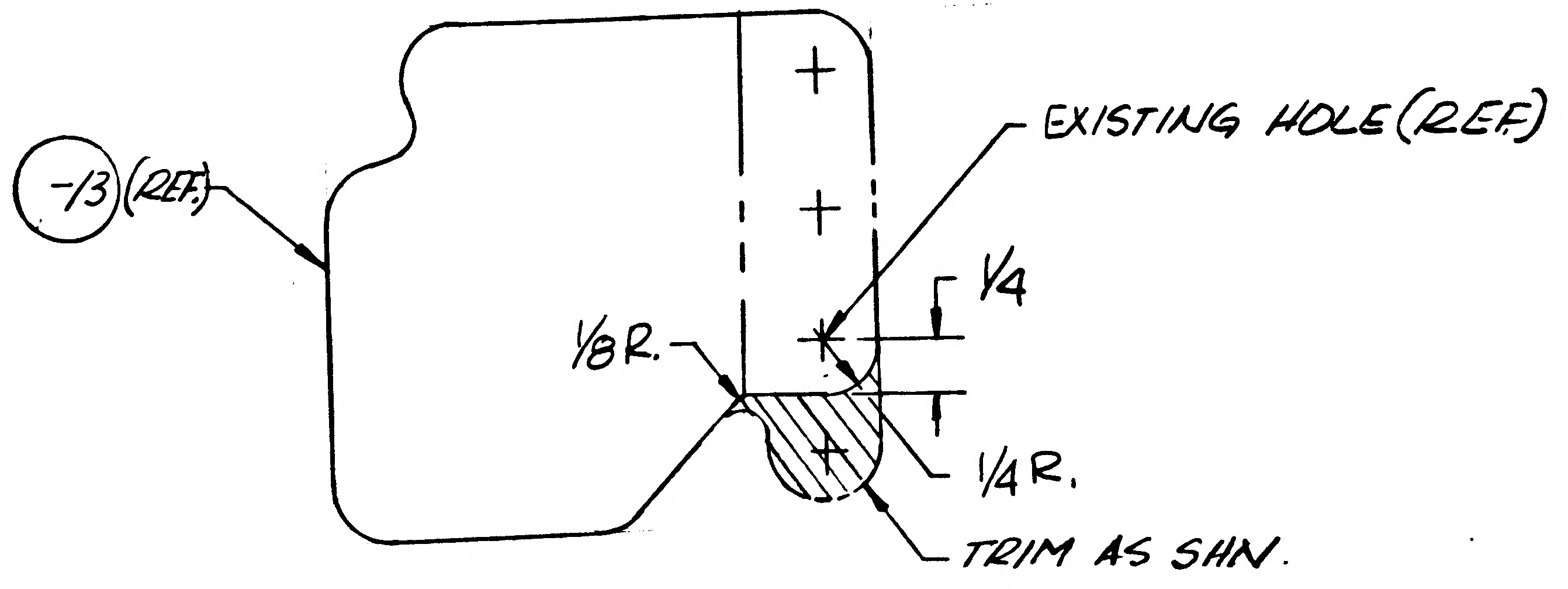
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18561
EO NO. A1
CONTROL INFO NO. LDW280 B 3406

IN F/D: ON -13, REVISE TRIM AS SHN.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13	(5)

REASON FOR EO: AVOID INTERFERENCE WITH CAPSTRIP

DESCRIPTION OF EO: ON -13, REVISED TRIM

GAEC EO RELEASE: JK 5/11/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU LM-15(45)	
		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-13	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JW			GW PST	WB WJH		JP	JP
DATE	5/11/68			5/11/68	5/11/68		5/11/68	5-11-68
G	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CLIP ~ D/S - QUAD II ~ UPPER DECK RH PULLEY GUARD SPT.
DRAWING NO.: LDW280-18561
EO NO.: A1

051768
ISSUED BY J. TAVARES (x1681) / P. THORJUSEN (x1153) SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 950
CONTROL INFO NO. LDW280B3380

FOR THE FOLLOWING PARTS ADD TM-5/R(65) REQMTS, N/A LDW280-54679 FOR QUANTITIES NOTED

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18374-19	SEE DWG	4	A2 ✓
-21		1	
-23		1	
-25		1	
-18374-27		1	
-18375-11		1	A2 ✓
-12		1	
-13		2	
-14		2	
-15		2	
-17		4	
-18375-19		1	
-18458-11		1	A4 ✓
-13		1	
-17		1	
-19		1	
-18458-23		1	
-18460-21		1	A3 ✓
-23		1	
-25		1	
-17		1	
-18460-19		1	
-18461-21		1	A4 ✓
-22		1	
-13		2	
-15		2	
-17		1	
-18461-19		1	
-18469-11		1	A1 ✓
-13		2	
-15		2	
-17		2	
-18469-19		2	
-18470-11		1	A3 ✓
-18470-13		1	
LDW280-18470-15	SEE DWG	1	
LDW280-18470-19	SEE DWG	1	
LDW280-18470-21	SEE DWG	1	

DRAWING NO.	* TITLE	REQ'D/MOD	CHANGE NO.
LDW280-18489-11	SEE DWG	1	A2 ✓
-13		1	
-15		1	
-17		1	
-18		1	
-18489-19		1	
-18506-11		1	A1 ✓
-13		1	
-15		1	
-17		1	
-18506-19		2	
-18513-11		1	A2 ✓
-13		1	
-15		1	
-17		1	
-18513-19		1	
-18560-11		1	A1 ✓
-13		1	
-15		1	
-17		1	
-18560-19		1	
-18561-11		1	A2 ✓
-13		1	
-15		1	
-17		1	
-18561-19		1	
-71512-11		1	A1
-13		2	
-15		1	
-17		1	
-71512-18		1	
M17884-13		1	A5
M17885-13		1	A3
M17890-11		1	A2
M17969-11		1	A1
M17970-11		1	A1
M17971-11		1	A1
M17972-11		1	A1
LDW280M17973-11	SEE DWG	1	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 2H (5)

REASON FOR EO: ADD TM-5(65) REQMTS.

DESCRIPTION OF EO: ON - * ADDED TM-5/R(65) REQMTS

GAEC EO RELEASE: 5/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY								
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-17-68
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 950

5-17-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VD1 GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561	A3	
-18562	A5	
-18563	A3	
-18585	B1	
-18586	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/22

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/4/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1382

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280		EO NO. 1556
CONTROL INFO NO. LDW 280B 8120		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18531	SEE DWG	B2
✓ 550		A2
✓ 553		A2
✓ 557		A4
✓ 558		A6
✓ 560		A4
✓ 561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQ'MTS

GAEC EO RELEASE: SWB 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PBF				N			Bauman
DATE	7-29-69			7/29/69	8-7-69		8/4/69	8-15-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

.NGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1650
CONTROL INFO NO. LDW280B 8443

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

	DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
/	LDW 280 - 18374	SEE DRAWING	LDW280-54679	A6
/	-18375		-54679	A6
/	-18513		-54679	A8
/	-18489		-54679	A5
/	-18460		-54679	A6
/	-18461		-54679	B2
/	-18469		-54679	A4
/	-18470		-54679	A6
/	-18506		-54679	A5
/	M17884		-54679	B2
/	-18560		-54679	A5
/	LDW 280 - 18561		-54679	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 70 PG 6+7 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: SAB 8-26; JK 8/29/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1	(460)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	PSA				W/A			
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/28/69
	VDI							

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LE0280

EO NO.: 1650

F-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18562

PART NO. LDW280-18562-15,-17&-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54674	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54674	LM-4(34)	1 EA

PART NO. LDW280-18562-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54674	DESIGN VERIFICATION TEST (70)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
		LM-5(35)	2
LM	LDW280-54674	LM-4(34)	2

PART NO. LDW280-18562-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54674	DESIGN VERIFICATION TEST (70)	7
		LM-15(45)	7
		LM-14(44)	7
		LM-13(43)	7
		LM-12(42)	7
		LM-11(41)	7
		LM-10(40)	7
		LM-9(39)	7
		LM-8(38)	7
		LM-7(37)	7
		LM-6(36)	7
		LM-5(35)	7
LM	LDW280-54674	LM-4(34)	7

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 VC(001) MP-16-3/27/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 CCA586

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY G. ZARCADOOLAS 3/5/68
LAYOUT BY GORTLER
CHECKED BY JOHN BELL 3/15/68
GR. LEADER Thoyusen 2/21/68
VEH DSGN INT 3/22/68
STRUCTURES 3/26/68
STRUCTURES 3/26/68
WEIGHTS
PROJ ENGR J. Pusateri 3/26/68
REL GROUP Tagliaire 3-27-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-QUAD II-THERMAL
DOOR~ JAMB SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18562

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 3-22-68

01

NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18562-19	E		BRACKET	AL ALY SH	MIL-A-8920	2219-T81	.050 X 2 X 2	NONE	NONE	
	LDW280-18562-17	E						.050 X 2 X 3			
	LDW280-18562-15	E						.050 X 2 X 4			
	LDW280-18562-13	E						.050 X 2 X 3			
	LDW280-18562-11	E		BRACKET	AL ALY SH	MIL-A-8920	2219-T81	.050 X 2 X 4	NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18562

SCALE NONE

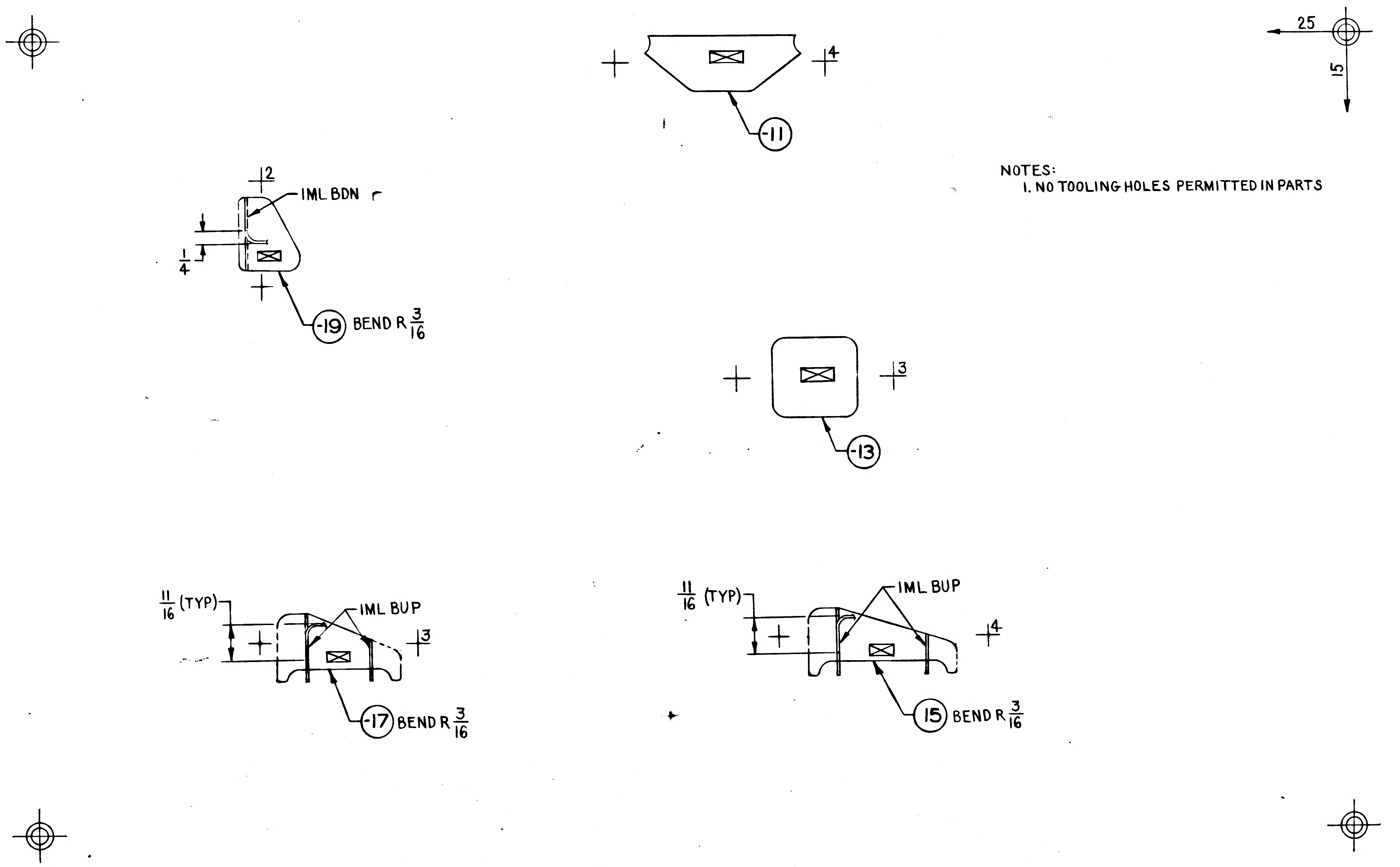
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



25
15
4
-11
2
IML BDN
1/4
-19 BEND R 3/16
3
-13
11/16 (TYP)
IML BUP
3
-17 BEND R 3/16
11/16 (TYP)
IML BUP
4
15 BEND R 3/16

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18562

SCALE FULL
SHEET 3.00

ENG 73.3 REV. 5-67

FOR PHOTO REPRODUCTION

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18562 EO NO. A1
CONTROL INFO NO. LDW280B2909

ON -11, -13, -15, -17, & -19
ADD LTA8 (18) REQUIREMENTS

ON -11	7	REQD/MOD.	N/A	LDW280-66674
-13	2	" "	"	"
-15	1	" "	"	"
-17	1	" "	"	"
-19	1	" "	"	"

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1021-23 CCA 498 PKG 4 (5)

REASON FOR EO: PROVIDE FOR ALSEP DOORS & R.T.G. SPT TRUSS.

DESCRIPTION OF EO: ON -11, -13, -15, -17, & -19 ADDED LTA8(18) LFM 118 REQMTS

GAEC EO RELEASE: JK 5/17/68 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 118	LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQD

APPROVED BY / DATE: 5/16/68, 5-16-68, 5-15-68, 5/16/68, 5/16/68, 5/17/68
VDI ~~SUPPORT~~ THERMO RELIAB. GROUP GROUP LEADER STRESS GROUP LIAISON ENGRG PROJ ENGRG

PRIORITY: C
DRAWING TITLE: BRACKET ~ D/S ~ QUAD II THERMAL DOOR ~ JAMB SUPPORT
DRAWING NO.: LDW280-18562
EO NO.: A1

5-31-68
ISSUED BY T. COTTER x3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 960
CONTROL INFO NO. LDW280B3372

FOR THE FOLLOWING PART NOs ADD TM-5/R(65) REQMTS FOR THE N/A INDICATED FOR THE QUANTITIES NOTED

PART NO.*	TITLE	N/A	REQD/MOD	CHANGE NO
LDW280-18562-11	SEE DWG	LDW280-54674	7	A2
-18562-13			2	
-18562-15			1	
-18562-17			1	
-18562-19			1	
-18468-17			8	A4
-18468-19		-54674	3	
-18468-11		-54837	2	
-18468-13			2	
-18468-15			4	
-18468-17			10	
-18468-19			20	
-18468-21		-54837	1	
M17801-11		-54793	14	A1
M17802-11			7	A1
M17803-11			14	A1
M17838-11		-54793	12	A2
M17838-13		-66503	2	
-18418-13		-66502	1	A3
M17797-13		-54639	1	A3
-18530-11			1	A1
-18530-13		-54639	1	
/				
-18530-15		-54638	1	
-18530-16		-54638	1	
-54767-1		-54648	1	A1
-54767-3			1	
-54767-5			1	
-54767-7			1	
LDW280-54602-1	SEE DWG	LDW280-54648	1	A2
LDW280M17798-13	SEE DWG	LDW280-54638	1	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3075 CCA 586 PKG 25

REASON FOR EO: ADD TM-5/R(65) REQMTS

DESCRIPTION OF EO: ON (*) ADDED TM-5/R(65) REQMTS

GAEC C EO RELEASE: JK 7-2-68 (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COST~~
APPROVED BY	JAS			GH. PBF	WH		Sap	Am
DATE	5/13/68			5-13-68	5/13/68		5/13/68	5-20-68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO280
EO NO.: 960

5-17-68
ISSUED BY T. COTTER x 3352 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

ENG 33.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 975
CONTROL INFO NO. LM-3-6227

FOR DASH NOS OF DRAWINGS LISTED BELOW REVISE FINISH.
FINISH #76 PER LSP-14-9010 WAS FINISH NONE.

DRAWING NO	DASH NOS. *	CHG	
LDW280-54837	-11 THRU -113	A8	✓
LDW280-54674	-11 THRU -51	A3	✓
LDW280-18562	-11 THRU -19	A3	✓

* USE APPLICABLE DASH No IN DESCRIP OF E.O.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

(3)

REASON FOR EO: ALODINE MUST BE ACCOMPLISHED AT DETAIL LEVEL.

DESCRIPTION OF EO: FOR DASH NOS. * FINISH #76 WAS FINISH NONE.

GAEC EO RELEASE: R ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	DVT 70
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				Z	BM			
DATE	6/8/68				5-17-68	5-17-68	6/7/68	5-24-68

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO. LEO 280
EO NO. 975

ISSUED BY VPE / VIC BOLLO X 2151 5-17-68 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

LFM

ENG 32.2 REV

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 995
CONTROL INFO NO. LDW 280 B3475

FOR THE FOLLOWING DWG'S ADD M3/FVV (03) REQUIREMENTS FOR THE NEXT ASSY & QUANTITIES NOTED.

	DWG NUMBER (*)	TITLE	NEXT ASSY.	QTY/MOD	CHG NO.
✓	LDW280-54742-1,-3 & -5	✓	LMU280-31216	1 EACH	A2
✓	LDW280P18282-1	✓	LMU280-31216	1	A9
✓	LDW280-66837-1 & -3		LMU280-31218	1 EACH	A2
✓	LDW280-66793-1 & -3	✓		2 EACH.	A1
✓	LDW280-18464-11,-13,-15,-17	✓		1 EACH.	A3
✓	LDW280-18465 -11,-12,-19 -13,-14,-15,-16	✓		2 EACH. 1 EACH.	A3
✓	LDW280-18466 -11,-12,-13,-14 -15,-16,-17,-18	✓		1 EACH. 2 EACH.	A3
✓	LDW280-18467-11,-13,-15,-17,-19	✓		1 EACH	A3
✓	LDW280-18474-11,-12,-13,-14,-15,-17,-19	✓		1 EACH.	A3
✓	LDW280-18523 -11,-19 -13,-14,-15,-17	✓ SEE DWG		1 EACH. 2 EACH	A3
✓	LDW280M17845-11	✓		1	A4
✓	LDW280M17839-11	✓		4	A5
✓	LDW280M17841-11	✓		2	A3
✓	LDW280M17843-11	✓		2	A4
✓	LDW280M17844-11,-12	✓		1 EACH	A3
✓	LDW280M17846-11,-12	✓		1 EACH.	A3
✓	LDW280M17804-19 -21	✓	LMU280-31218	4 2	A4
✓	LDW280-54767-1,-3,-5,-7	✓	LMU280-31217	1 EACH	A2
✓	LDW280-18562-11 -13 -15,-17,-19	✓	LDW280-66674	7 2 1 EACH.	A4
	LDW280-54647-1	✓	LMU280-31216	1	A1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3049 CCA 1064 PKG 3 & 4

REASON FOR EO: UPDATE M3 MOCKUP TO LM-4 QUAD II CONFIGURATION.

DESCRIPTION OF EO: ON (*) ADDED END ITEM LFM 164 REQMTS.

GAEC EO RELEASE: C (5) JK 6/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 164	M3/FVV (03)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	5/24/68			5 24 68	5/24/68		5/24/68	6-4-68
	V.D.I.							

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 995

5-24-68
ISSUED BY G. HANSMANN X 3352 SECTION V.D.I. GROUP NO. 280 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LEO 280 | EO NO 1382
CONTROL INFO NO. LDW280B ~~7440~~

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. ✱

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563	A3	
-18585	B1	
-18586	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

✱ APPLICABLE DASH NOS

☐ ☐ ☑ LCD3597 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM ✱

EFFECTIVITY: LM | | LM-15(45) |

DRAWING CHANGE REQD: REVISE DWG ✓

DISPOSITION OF PARTS: SCRAP ✓

DATE: 4-2-69 4/8/69 4/9/69

V.D.I

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1382

6-3-69

ISSUED BY: MEVORAH/THORJUSEN X86046 SECTION: VEH DES INT GROUP NO.: 335 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1556
CONTROL INFO NO. LDW 280B 8120		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18531	SEE DWG	B2
✓ 550		A2
✓ 553		A2
✓ 557		A4
✓ 558		A6
✓ 560		A4
✓ 561		A4
✓ 562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	SAB 8-13-69 JK 8/5/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	DATE	7-29-69			7/29/69	8-2-69		8/4/69 8-15-69
LM		LTA-11 ([redacted]) (23)							VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Approved by: PJT; N; Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1556

8-29-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1829
CONTROL INFO NO. LDW280 B9862

FOR ALL DRAWINGS LISTED WITH DASH NO.S * AND NEXT ASSEMBLY**
DELETE LTA-11 (23) EFFECTIVITY.

DWG. NO. *	CHANGE NO.	DWG. NOMENCLATURE	N/A **
✓ LDW 280-18468-17,-19	B4	SEE DWG.	LDW280-54674
✓ LDW 280-18562-11,-13,-15,-17,-19	A7	SEE DWG.	LDW280-54674

*APPLICABLE DASH NO.S **APPLICABLE N/A

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 99 (5)

REASON FOR EO: PARTS NOT REQUIRED FOR DROP TEST LTA-11(23)

DESCRIPTION OF EO: DELETED LTA-11 (23) EFFECTIVITY FOR DWG. & DASH NO.S * FOR N/A **

GAEC EO RELEASE: SK 2/5/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	2-2-70			2/2/70	2/3/70		2-3-70	2/5/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LE0280 | EO NO.: 1829

CDR 2-6-70
ISSUED BY A. GROSS/R. CLARK SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18563

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54797	DESIGN VERIFICATION TEST (70)	2 EA
↑	↑	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
		LM-6(36)	2 EA
↓	↓	LM-5(35)	2 EA
LM	LDW280-54797	LM-4(34)	2 EA

PART NO. LDW280-18563-11 & -13 | GAEC SCH NO.

WORK PACKAGE FUNCTION NO 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 207 | JK(001) | MP-16 3/29/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 .020 1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1433 (CCA 586)

(AK)

CONTRACT NO. NAS9-1100

DRAWN BY A. SCHMADTKE 3-19-68

LAYOUT BY G. YEE GY.

CHECKED BY JOHN BELL 3/25/68

GROUP LDR Thorjusen 3/26/68

VEH DES INT 3/27/68

STRUCT 3/27/68

STRUCT EB 3/28/68

WEIGHTS

RELIABILITY

PROJ ENGR 3/28/68

REL GROUP J. Marsh 3-29-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

HINGE HALF
DESCENT STAGE~QUAD II~BOOM
RETRACTION LANYARD~STORAGE COVER

SIZE B | CODE IDENT NO. 26512 | LDW280-18563

SCALE NONE | SHEET 1.00 OF 3

CDR- 03 29 68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18563-13	E	HINGE HALF				MS20001-Y2-150	NONE	88	
								LDW280-18563-11	E	HINGE HALF				MS20001-X2-150	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18563
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

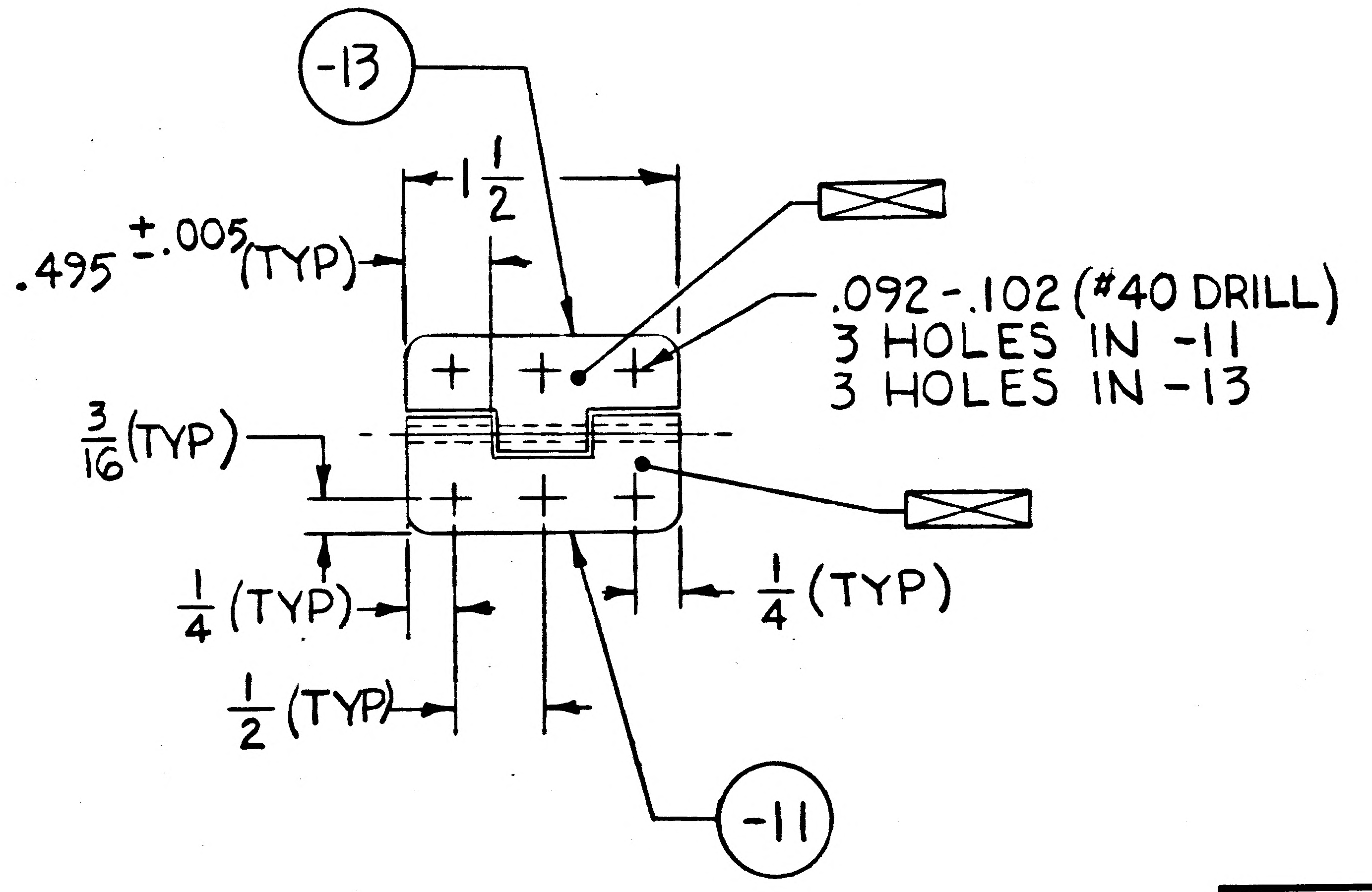
01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



-13
$1\frac{1}{2}$
$.495 \pm .005$ (TYP)
.092-.102 (#40 DRILL)
3 HOLES IN -11
3 HOLES IN -13
$\frac{3}{16}$ (TYP)
$\frac{1}{4}$ (TYP)
$\frac{1}{4}$ (TYP)
$\frac{1}{2}$ (TYP)
-11

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18563
SCALE FULL		SHEET 3.00

ENG 73.1 6-64

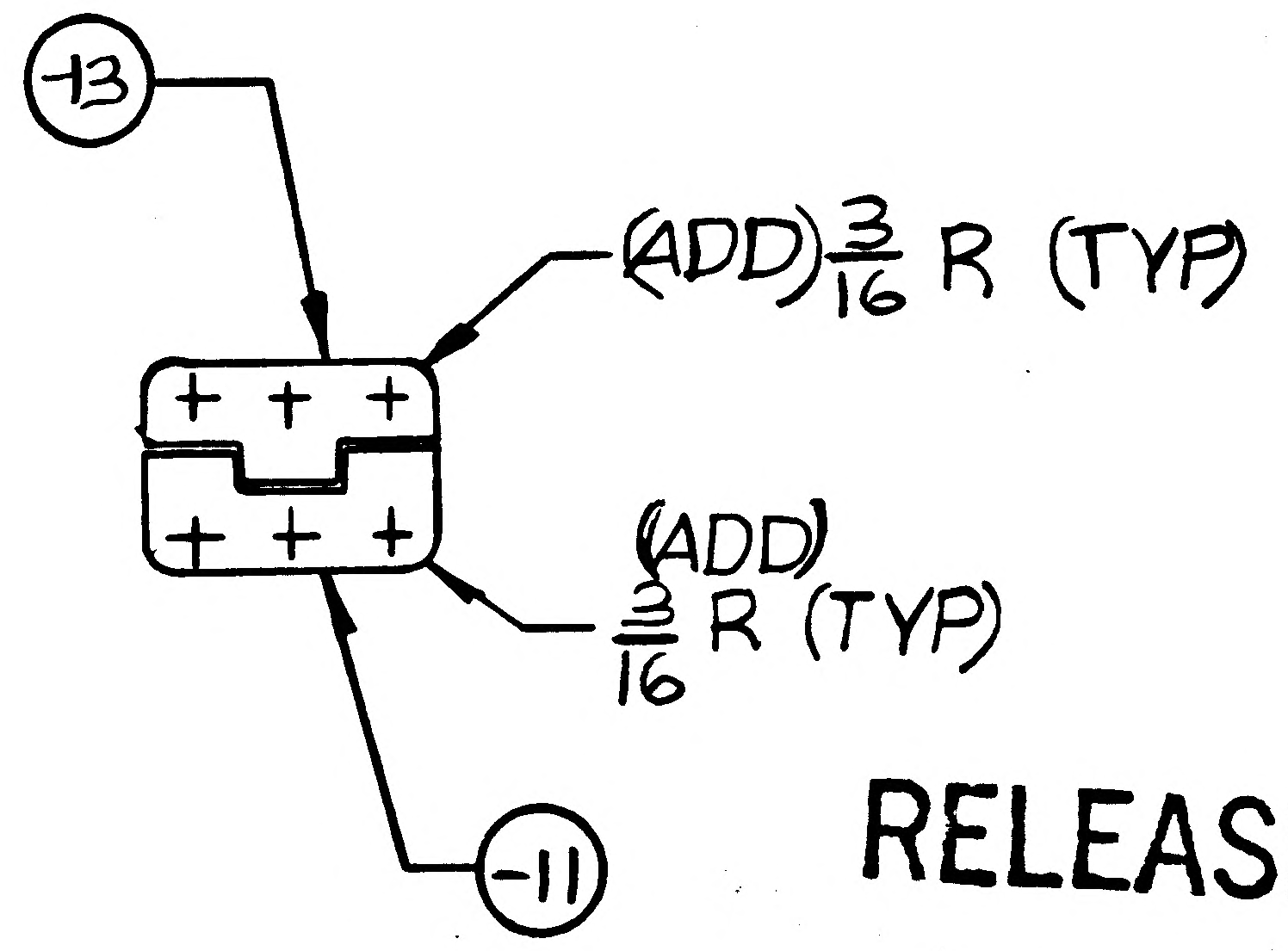
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18563		EO NO. A1
CONTROL INFO NO. LM-5-19673		

IN F/D
ON -11 & -13



RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	CL I ENGRG CHG	☒	LCD 1433 CCA 586 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RADIUS REQD TO FULLY DEFINE MANUFACT. OF PART	ON -11 & -13 ADDED 3/16 RAD. DIM	VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	RP	JAS		Z		CH	JAP	
DATE	4/5/68	4/20	.		4-6-68	4-6-68	4/20	4/4/68
	5/DAT	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT. EO

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	HINGE HALF D/S QUAD II BOOM RETR. LAN STG CVR	LDW280-18563	A1

ISSUED BY LIAISON John J. BLASE x86755 SECTION VDI GROUP NO. 280 PL 25

QC

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18563
EO NO. A2
CONTROL INFO NO. LDW280B 3373

ON-11 & -13

ADD TM-5/R (65) REQUIREMENTS

2 REQD/MOD N/A LDW280-54797

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3075 CCA 586 PKG 2R	(5)

REASON FOR EO: ADD TM-5/R (65) REQMTS

DESCRIPTION OF EO: ON-11 & -13 ADDED TM-5/R (65) REQUIREMENTS

GAEC EO RELEASE: C 5/17/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

APPROVED BY				G.A. P&T	N/A			
DATE	5/16/68			5-16-68	5/16/68		5/16/68	5-17-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C

DRAWING TITLE: HINGE HALF ~ D/S ~ QUAD II ~ BOOM RETRACTION LANYARD ~ STORAGE COVER

DRAWING NO.: LDW280-18563

EO NO.: A2

5-17-68
ISSUED BY T. COTTER x3352/P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585	B1	
-18586	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/22/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/22/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1382

052869
ISSUED BY: MEVORAH/THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDFNT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1556
CONTROL INFO NO. LDW280B8120

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18531	SEE DWG	B2
550		A2
553		A2
557		A4
558		A6
560		A4
561		A4
562		A6
LDW280-18563	SEE DWG	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 38 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; JK 8/5/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D							N		Bauman	
				DATE	7-29-69			7/31/69	8-2-69		8/14/69	8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1556

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18567

LFM

LFM 119	LDW280-66702	LTA-8 (18)	1EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18567-11, -13&-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	
LAST DASH NO. USED	-15

GRUMMAN REL INFO

PRIM NO.	VK(001)		
207	MP-16-	5/25/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD1021-26~CCA 498	

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	C. D'AVELLA 5-7-68	RELIABILITY	
LAYOUT BY	J. TAVARES 5-20-68		
CHECKED WCG	5-17-68		
GR. LEADER	G.H. Thorjusen 5-21-68		
VEH.DES.INT.	5/20/68		
STRUCT.	N MH 5/22/68	PROJ ENGR	J. Pusateri 5/23/68
STRUCT.	EPJ 5/23	REL GROUP	L. Marsh 5-23-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
®
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ QUAD II
LH END CLOSURE ~ UPPER TRUSS SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18567
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-66

CDR 6-7-68

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18567-15	E	PLATE	AL ALLOY SH.	QQ-A-250/12	7075-T6	.063X 3X4	NONE	88	
								LDW280-18567-13	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.063X 3X3	T6	88	
								LDW280-18567-11	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.063X 2X4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18567

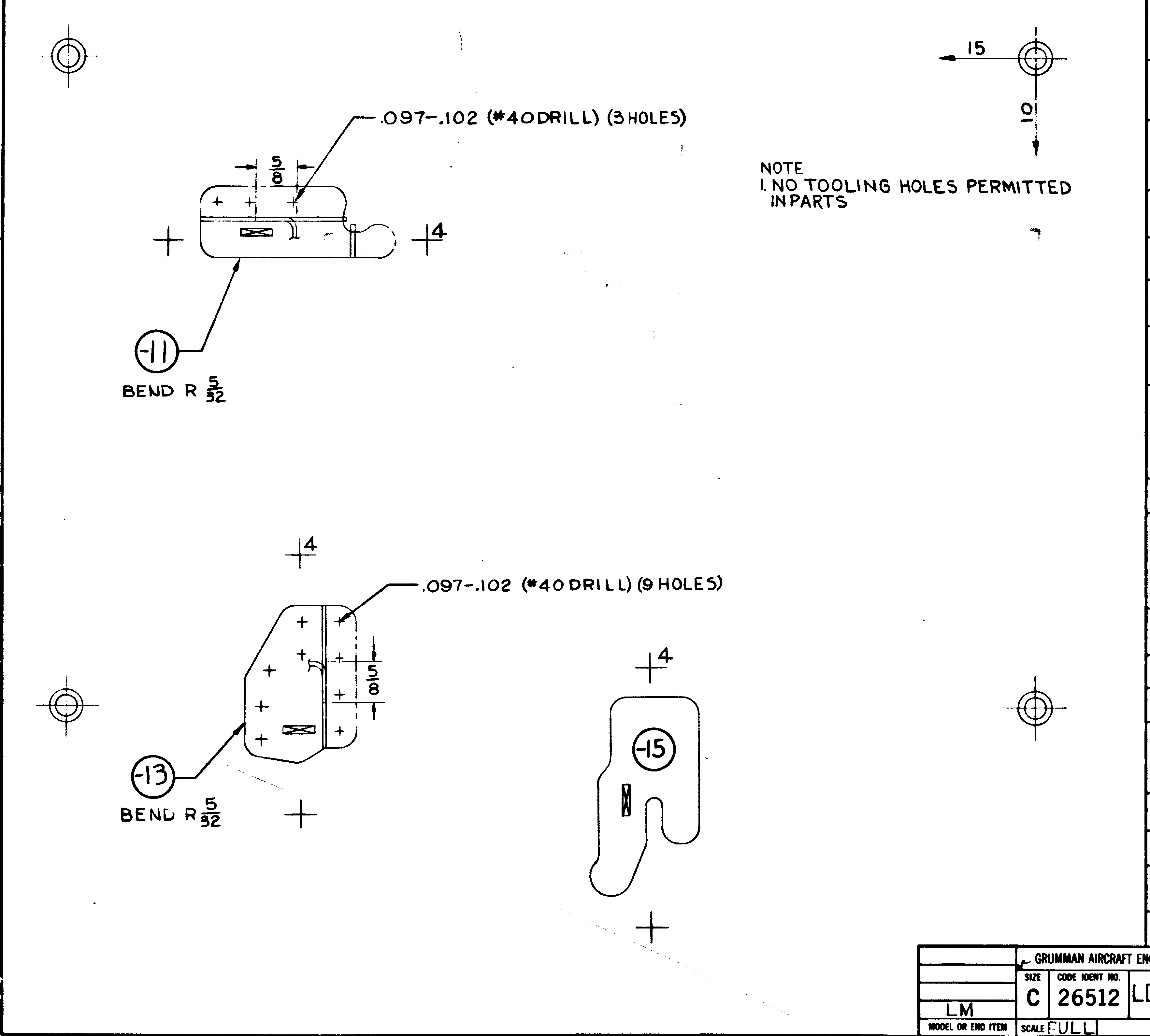
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM O.K.
T.S 5-1-68


4
3
2
1
15
10
.097-.102 (#40 DRILL) (3 HOLES)
5/8
4
-11
BEND R 5/32
4
.097-.102 (#40 DRILL) (9 HOLES)
5/8
-13
BEND R 5/32
4
-15

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	✓

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE C	CODE IDENT NO. 26512	LDW280-18567	
LM MODEL OR END ITEM	SCALE FULL			SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

01

NAS 9-1100

LDW280-18568

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 118	LDW280-66569	LTA-8 (18)	2 EA
PART NO. LDW280-18568-19, -20		GAEC SCH NO.	
LFM 118	LDW280-66569	LTA-8 (12)	1 EA
PART NO. LDW280-18568-11, -13 -15, -17		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED —

LAST DASH NO. USED -20

GRUMMAN REL'G INFO

PRIM NO. 207 VK(001) MP-16 6/1/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1021-23 CCA 498

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN	RELIABILITY	
LAYOUT BY	FIORELLO 5-21-68	THERMO	5/28/68
CHECKED BY	5-18-68		
GR LEADER	5-22-68		
VEH DES INT	5/23/68		
STRUCTURES	NM	5/23/68	PROJ ENGR	5/31/68
STRUCTURES	5/23/68	REL GROUP	6/1/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ SCIENTIFIC EQUIP. BAY ~ HINGE SPT

SIZE B
CODE IDENT NO. 26512
LDW280-18568
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

OK

CDR 6-14-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18563-20	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 3 x 7	NONE	88	2B
		-19		BRACKET				.032 x 3 x 7			2B
		-17		ZEE				.032 x 6 x 27			4D
		-15		WEB				.032 x 11 x 27			6C
		-13		WEB				.032 x 7 x 15			4C
		LDW280-18568-11	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 4 x 56	NONE	88	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18568

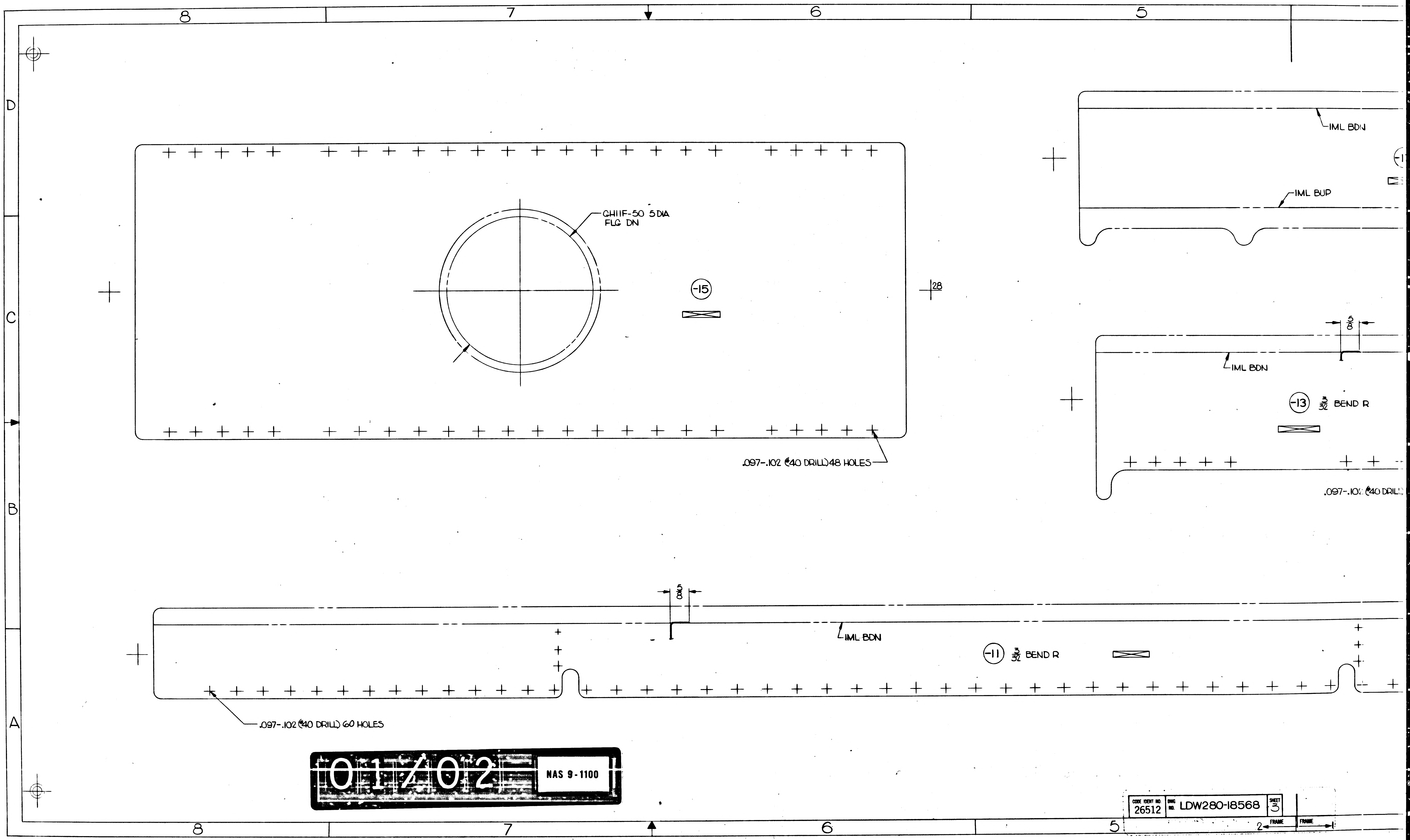
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18568



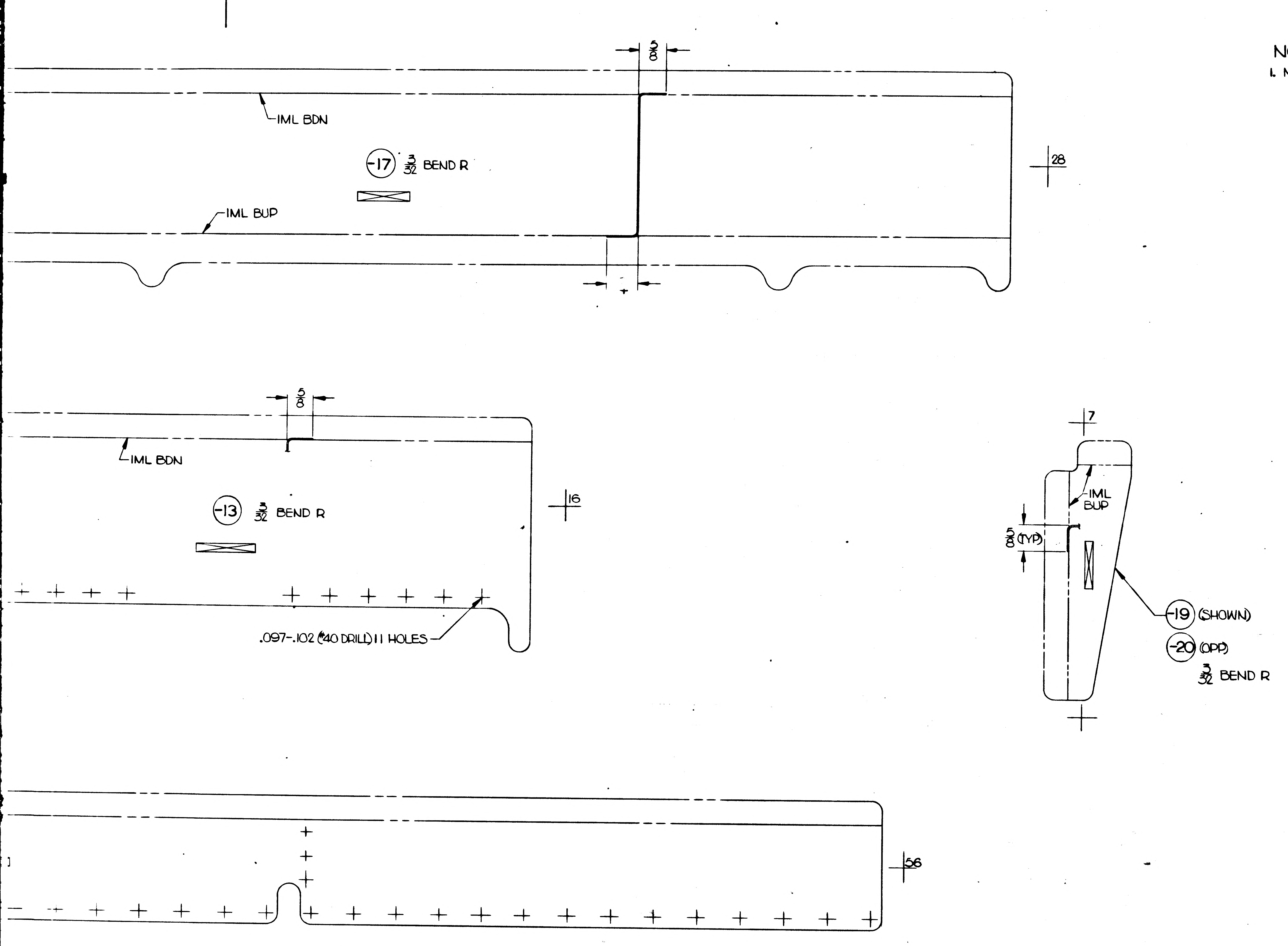
8
7
6
5
D
C
B
A
CHIIF-50 5 DIA
FLG DN
(-15)
28
.097-.102 (#40 DRILL) 48 HOLES
IML BDN
IML BUP
5/8
IML BDN
(-13) 3/32 BEND R
.097-.102 (#40 DRILL
5/8
IML BDN
(-11) 3/32 BEND R
.097-.102 (#40 DRILL) 60 HOLES

01/02 NAS 9-1100

CODE IDENT NO 26512 DWG NO LDW280-18568 SHEET 3

2 FRAME FRAME

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



5/8
IML BDN
-17 3/32 BEND R
IML BUP
28
5/8
IML BDN
-13 3/32 BEND R
16
.097-.102 (#40 DRILL) 11 HOLES
7
IML BUP
5/8 (TYP)
-19 (SHOWN)
-20 (OPP)
3/32 BEND R
56

DWG 771 2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28x88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30x98)= 20.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 5 SQ FT
PRINT TRIM LINE

LDW280-18568

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE H	CODE IDENT NO. 26512	LDW280-18568	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 2FR K2

512	DWG NO. LDW280-18568	SHEET 3

2← FRAME FRAME →1

LDW280-18569

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-118	LDW280-66569	LTA-8(18)	1EA
PART NO. LDW280-18569-11 THRU -20		GAEC SCH NO.	

WORK PKG FUCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-20	207	MP-16 6/1/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT ☐
CLASS II ENGRG CHANGE ☐
CLASS I ENGRG CHANGE ☑
LCD1021-23, CCA4
OK

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 5/14/68	RELIABILITY	
LAYOUT BY	FIORELLO 5/21/68	THERMO	Jcuff 5/28/68
CHECKED BY	Ben Moffiocano 5/18/68		
GR. LEADER	Gr. Sporjensen 5-22-68		
VEH DES INT	Jstraleowski 5/23/68		
STRUCTURES	NM WH 5-1-68	PROJ ENGR	J. Lusateri 5/31/68
STRUCTURES	EB 5/29/68	REL GROUP	Marsh 6-1-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - SCIENTIFIC
EQUIP. BAY ~ HINGE SPT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18569
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6-14-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18569-20	E	CLIP	AL ALLOY SH	QQA-250/4	2024-T3	.032×3×4	NONE	88	
		LDW280-18569-19	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032×3×4	NONE	88	
		-18		ANGLE				.032×2×12			
		-17		ANGLE				.032×2×12			
		-16		SUPPORT				.032×5×13			
		-15		SUPPORT				.032×5×13			
		-14						.032×4×9.			
		-13						.032×4×9			
		-12						.032×9×13			
		LDW280-18569-11	E	SUPPORT	AL ALLOY SH	QQ-A-250/4	2024-T3	.032×9×13	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280 - 18569

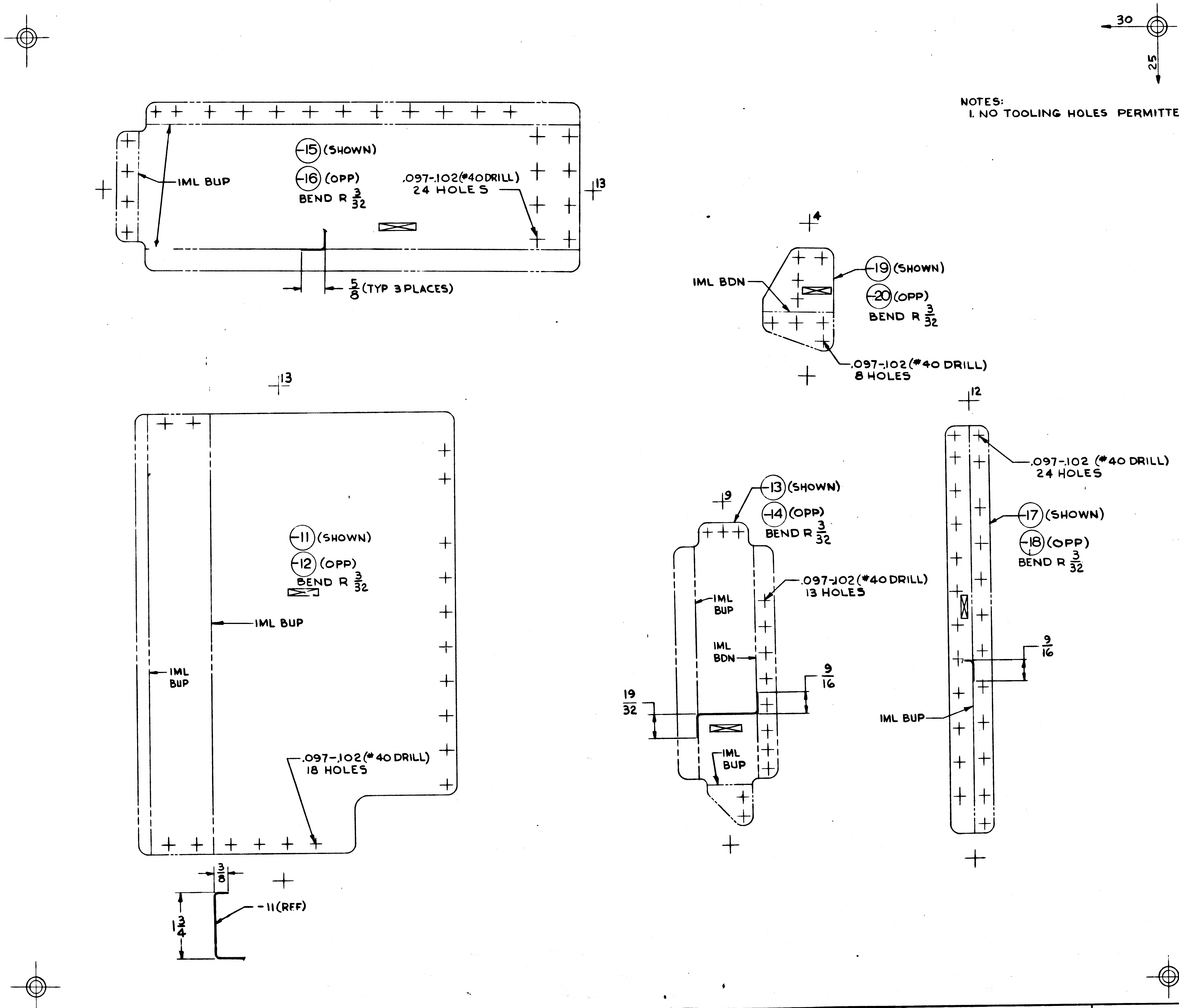
SCALE NONE

SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100



-15 (SHOWN)
-16 (OPP)
BEND R 3/32
IML BUP
.097-.102 (#40 DRILL) 24 HOLES
13
5/8 (TYP 3 PLACES)
30
25
4
IML BDN
-19 (SHOWN)
-20 (OPP)
BEND R 3/32
.097-.102 (#40 DRILL) 8 HOLES
13
-11 (SHOWN)
-12 (OPP)
BEND R 3/32
IML BUP
IML BUP
.097-.102 (#40 DRILL) 18 HOLES
3/8
1 3/4
-11 (REF)
9
-13 (SHOWN)
-14 (OPP)
BEND R 3/32
IML BUP
IML BDN
.097-.102 (#40 DRILL) 13 HOLES
9/16
19/32
IML BUP
12
.097-.102 (#40 DRILL) 24 HOLES
-17 (SHOWN)
-18 (OPP)
BEND R 3/32
9/16
IML BUP

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18569

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
LM
MODEL OR END ITEM
SIZE F
CODE IDENT NO. 26512
LDW280-18569
SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

K2

01 NAS 9-1100

LDW280-18570

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 118	LDW280-66569	LTA-8 (18)	1 EA
PART NO. LDW280-18570-11, -12, -13, -15, -17, -18, -19, -20		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	
LAST DASH NO. USED	-20

GRUMMAN REL INFO

PRIM NO.	JK(001)	
207	MP-N-5/25/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD1021-23 CCA498

O.K.

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN 5/17/68	RELIABILITY	
LAYOUT BY	FIORELLO 5/11/68	THERMO	5-20-68
CHECKED BY	JOHN BELL 5/10/68		
GR. LEADER	Thoyusen 5-18-68		
VEH DES INT	J. Pusateri 5/18/68		
STRUCTURES	NM W/H 5/21/68	PROJ ENGR	J. Pusateri 5/23/68
STRUCTURES	5/23/68	REL GROUP	5-24-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE ~ SCIENTIFIC
EQUIP. BAY SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18570
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6-14-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18570-20	E	BRACKET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 4 x 4	NONE	88	
		-19		BRACKET				.032 x 4 x 4			
		-18		ANGLE				.032 x 2 x 7			
		-17		ANGLE				.032 x 2 x 7			
		-15		ANGLE				.032 x 2 x 3			
		-13		CHANNEL				.032 x 3 x 10			
		-12		CHANNEL				.032 x 3 x 10			
		LDW280-18570-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 3 x 10	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18570

SCALE NONE SHEET 2.00

ENG 77.2 7-65

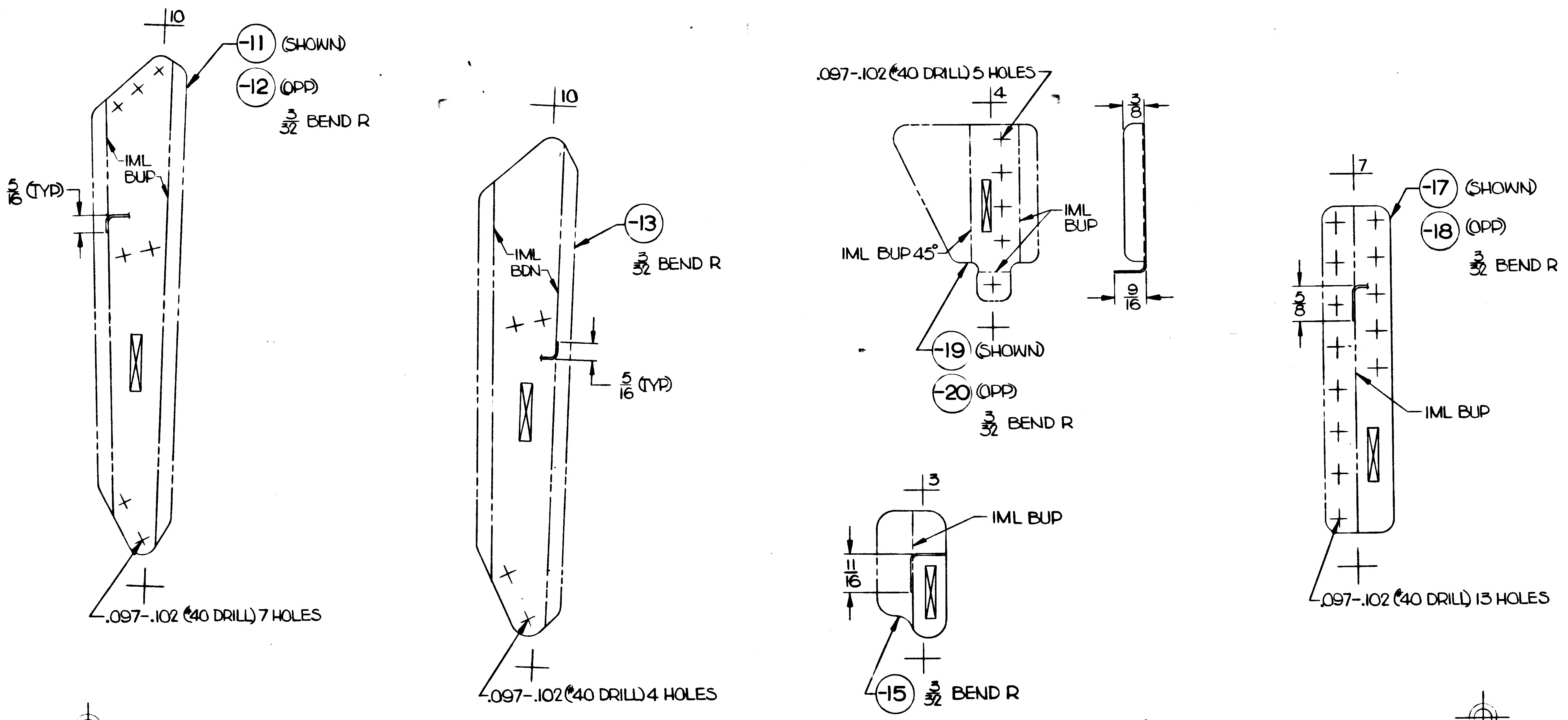
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.



10
-11 (SHOWN)
-12 (OPP)
3/32 BEND R
IML BUP
5/16 (TYP)
.097-.102 (40 DRILL) 7 HOLES
10
-13
3/32 BEND R
IML BDN
5/16 (TYP)
.097-.102 (40 DRILL) 4 HOLES
.097-.102 (40 DRILL) 5 HOLES
4
3/8
IML BUP
IML BUP 45°
19/16
-19 (SHOWN)
-20 (OPP)
3/32 BEND R
3
IML BUP
11/16
-15
3/32 BEND R
7
-17 (SHOWN)
-18 (OPP)
3/32 BEND R
3/8
IML BUP
.097-.102 (40 DRILL) 13 HOLES
25
15

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18570
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18571

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM	PART NO.
LFM 118	LDW280-66569	LTA-8 (18)	2 EA	LDW280-18571-13, -14, -15, -16, -17, -18, -19, -20
LFM 118	LDW280-66569	LTA-8 (18)	1	LDW280-18571-11

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH								
SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -20

GRUMMAN REL INFO			
PRIM NO.	VK(001)		
207	MP-16	5/23/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1021-23 (CCA498)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN 5/14/68	RELIABILITY	
LAYOUT BY	FIORELLO G.H.S. 5/13/68	THERMO	5-20-68
CHECKED BY WCG	JOHN BELL 5/11/68		
GR. LEADER	GR Thompson 5-18-68		
VEH DES INT	G. Pusateri 5/18/68		
STRUCTURES	NM W/H 5/21/68	PROJ ENGR	G. Pusateri 5/23/68
STRUCTURES	5/23/68	REL GROUP	L. Marsh 5/23/68
WEIGHTS			

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ SCIENTIFIC
EQUIP. BAY SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18571
SCALE NONE
SHEET 1.00 OF 3

CDR 6-14-68

ENG 77.1 12-65

O.K.

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18571-20	E	RIB	AL ALLOY SH	QQ-A-250/4	2024-T3	.032× 4×5	NONE	88	
		-19		RIB				.032× 4×5			
		-18		ANGLE				.032× 2×3			
		-17		ANGLE				.032× 2×3			
		-16		ANGLE				.032× 2×5			
		-15		ANGLE				.032× 2×5			
		-14		CHANNEL				.032 × 5×10			
		-13		CHANNEL				.032 × 5×10			
		LDW280-18571-11	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 × 7×47	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

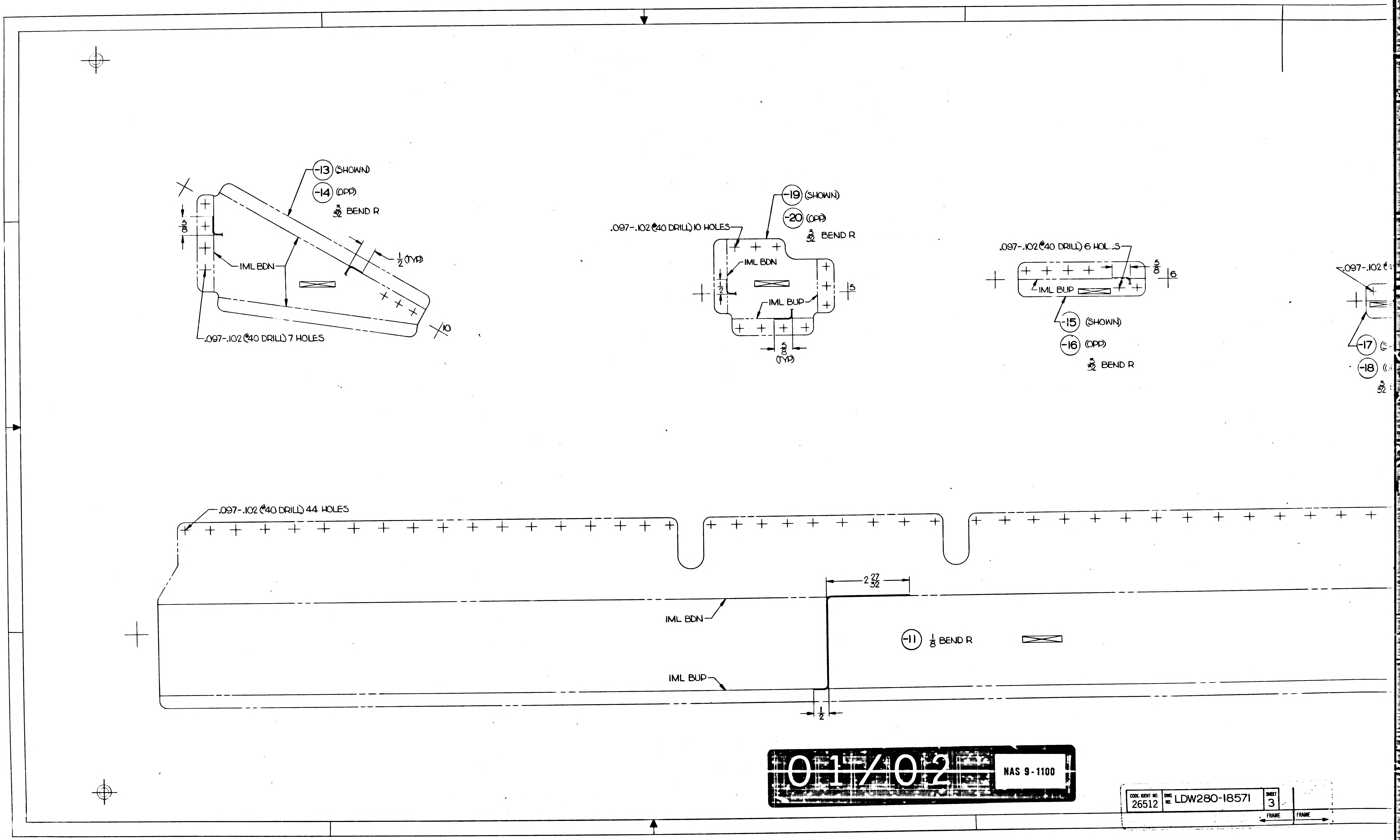
SIZE	CODE IDENT NO.	
B	26512	LDW280-18571

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


-13 (SHOWN)
-14 (OPP)
3/32 BEND R
5/8
IML BDN
1/2 (TYP)
10
.097-.102 (#40 DRILL) 7 HOLES
-19 (SHOWN)
-20 (OPP)
3/32 BEND R
.097-.102 (#40 DRILL) 10 HOLES
IML BDN
1/2
5
IML BUP
5/8 (TYP)
.097-.102 (#40 DRILL) 6 HOLES
5/8
6
IML BUP
-15 (SHOWN)
-16 (OPP)
3/32 BEND R
.097-.102 (#4
-17 (S
-18 (O
3/32
.097-.102 (#40 DRILL) 44 HOLES
2 27/32
IML BDN
-11 1/8 BEND R
IML BUP
1/2
01/02
NAS 9-1100
FRAME
FRAME

CODE IDENT NO. 26512 | DWG NO. LDW280-18571 | SHEET 3

TRAM O.K.
T.Y. 5-1-68

ENG 771.2 4-67

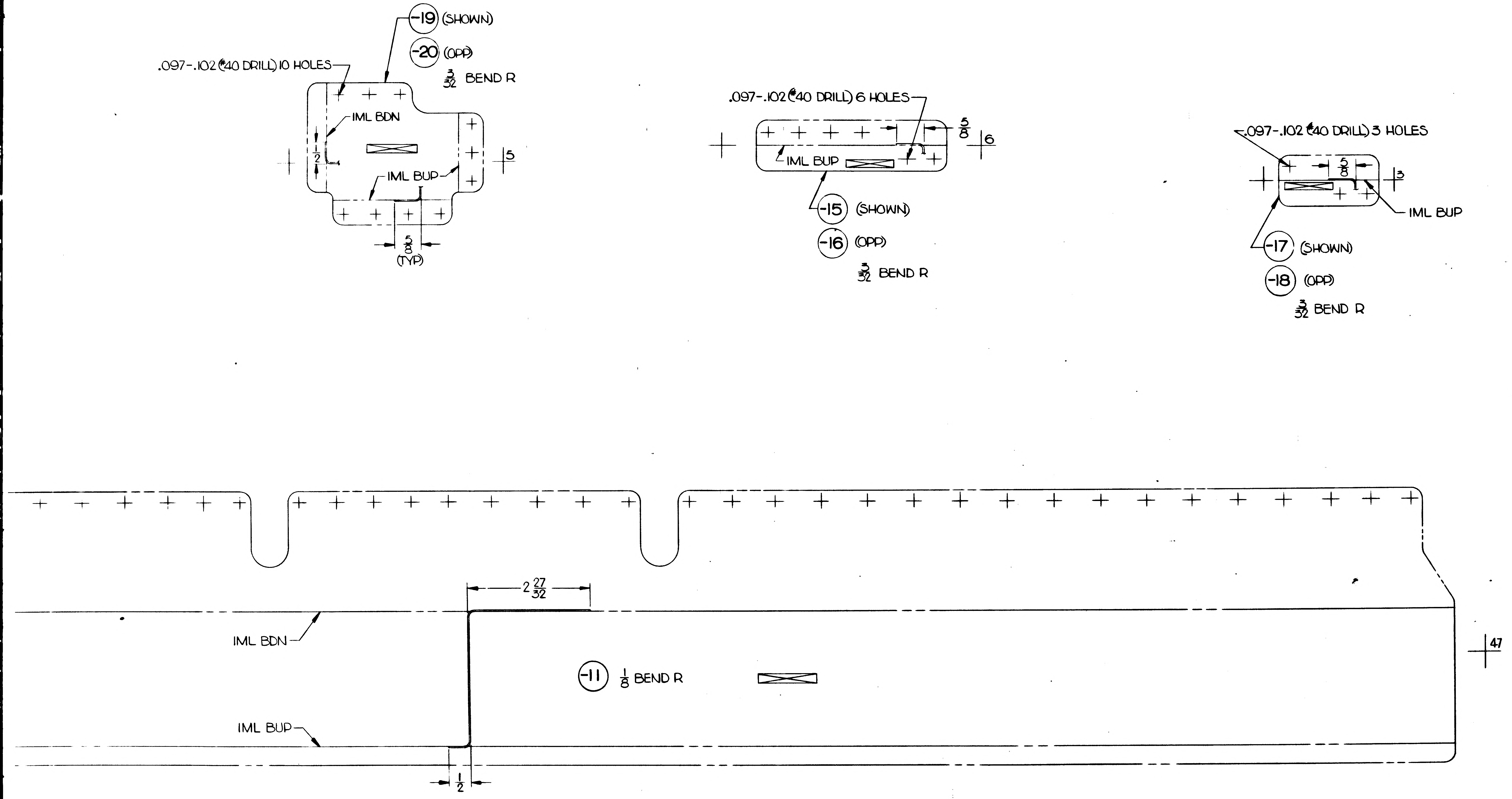
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 28x66
D

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 x 76) 16 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) 4 SQ FT
PRINT TRIM LINE

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



50
25
.097-.102 (#40 DRILL) 10 HOLES
-19 (SHOWN)
-20 (OPP)
5/32 BEND R
IML BDN
1/2
IML BUP
5
5/8 (TYP)
.097-.102 (#40 DRILL) 6 HOLES
5/8
6
IML BUP
-15 (SHOWN)
-16 (OPP)
5/32 BEND R
.097-.102 (#40 DRILL) 3 HOLES
5/8
3
IML BUP
-17 (SHOWN)
-18 (OPP)
5/32 BEND R
2 27/32
IML BDN
IML BUP
-11 1/8 BEND R
47
1/2

LDW280-18571

LDW280-18571

02/02 NAS 9-1100

R 40709

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18571	3

FRAME FRAME

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
H	26512	LDW280-18571
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 2FR K2

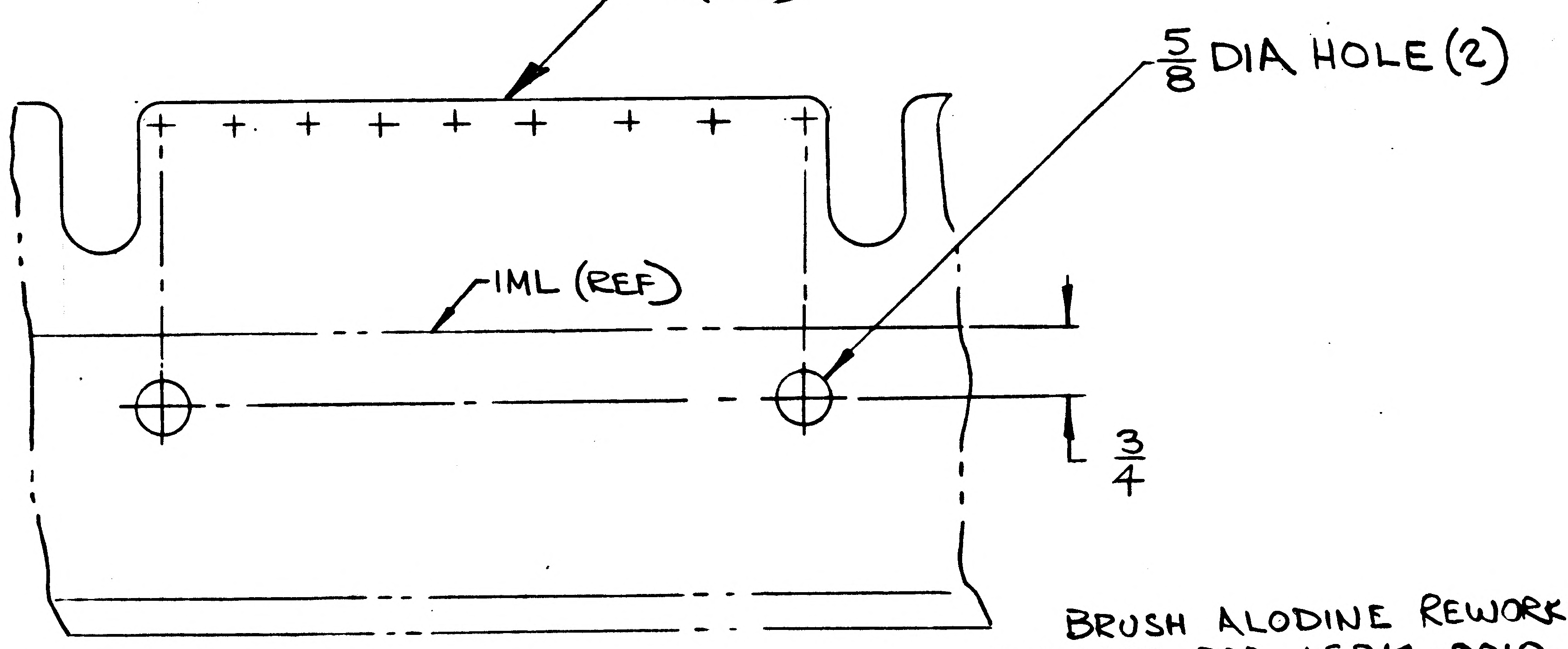
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18571
EO NO. A1
CONTROL INFO NO. 152-2293

TO BE LOFTED

ADD (2) $\frac{5}{8}$ DIA HOLES
TO -11



BRUSH ALODINE REWORKED
SURFACES PER LSP14-9010.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1021-23

(52)

REASON FOR EO	DESCRIPTION OF EO
TO ALLOW FOR RIVETING	ON -11 ADDED $\frac{5}{8}$ DIA HOLE (2)

GAEC EO RELEASE: JK 8/13/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	LFM 118	LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

	MSC CO & EXP	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
APPROVED BY	RW			Z	GWB			
DATE	7/16/68	8/13			7/16/68		7/16/68	16 JUL 68

PRIORITY: C
DRAWING TITLE: D/S - SCIENTIFIC ZEE EQUIP BAY SUPPORT
DRAWING NO. LDW280-18571
EO NO. A1

ISSUED BY G. BARNES/P. THORJUSEN/X1153 SECTION VDI GROUP NO. 335 PL 52

01

NAS 9-1100

LDW280-18572

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-118	LDW280-66569	LTA-8(18)	2 EA
PART NO. LDW280-18572-11,-13 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-118	LDW280-66569	LTA-8(18)	1 EA
PART NO. LDW280-18572-15,-16,-19 & -21		GAEC SCH NO.	

WORK PKG FUNCTION 111 ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-21	PRIM NO.	RP(601)	
		207	MP-16	6-8-68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1021-23 (CCA493)
OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 5-9-68	RELIABILITY	
LAYOUT BY	J. FIORELLO 5/21/68	THERMO	6-3-68
CHECK	J. Szalwinski 5-18-68		
GR. LEADER	5/29/68		
VEH. DES INT	J. Pugatin 5/31/68		
STRUCTURES	NM W/H 6/5/68	PROJ ENGR	J. Pugatin 6/6/68
STRUCTURES	EB 6/6/68	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

GUSSET
DESCENT STAGE - SCIENTIFIC
EQUIP. BAY-HINGE SPT

SIZE B
CODE IDENT NO. 26512
LDW280-18572
SCALE NONE
SHEET 1.00 OF 3

CDR 6-14-68

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18572-21	E	GUSSET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032× 2×2	NONE	88	
		-19	E	BRACKET			2024	.032× 5×6	T42		
		-17	E	ANGLE			2024- T3	.032× 2×4	NONE		
		-16	E	BRACKET				.032× 4×4			
		-15	E	BRACKET				.032× 4×4			
		-13	E	GUSSET				.032× 2×3			
		LDW280-18572- 11	E	GUSSET	AL ALLOY SH	QQ-A-250/4	2024-T3	.032× 2×3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18572

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

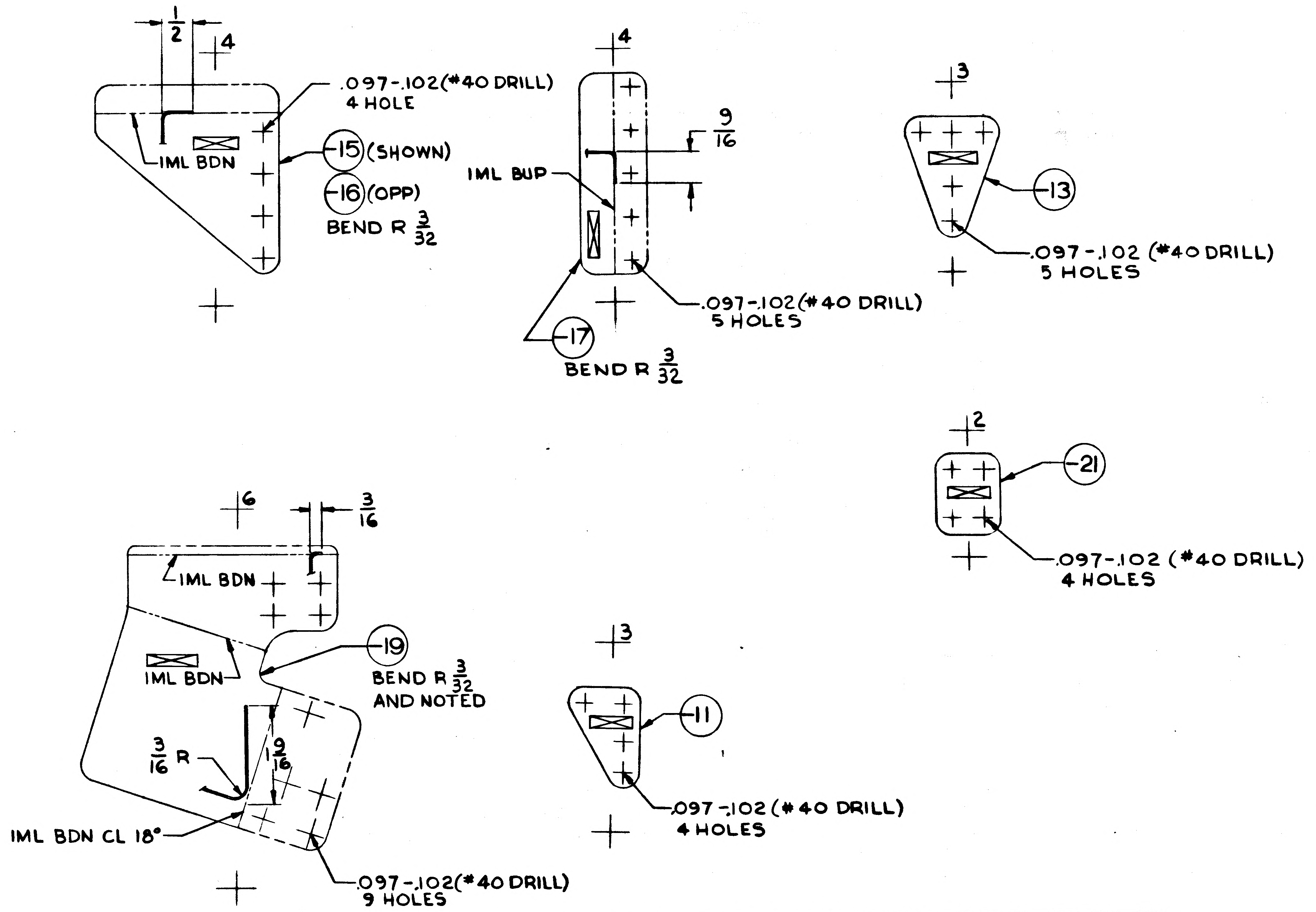
01

NAS 9-1100

4 LDW280-18572

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCES ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



1/2
4
.097-.102 (#40 DRILL) 4 HOLE
IML BDN
15 (SHOWN)
16 (OPP)
BEND R 3/32
4
9/16
IML BUP
.097-.102 (#40 DRILL) 5 HOLES
17
BEND R 3/32
3
13
.097-.102 (#40 DRILL) 5 HOLES
2
21
.097-.102 (#40 DRILL) 4 HOLES
6
3/16
IML BDN
IML BDN
19
BEND R 3/32 AND NOTED
3/16 R
1 9/16
IML BDN CL 18°
.097-.102 (#40 DRILL) 9 HOLES
3
11
.097-.102 (#40 DRILL) 4 HOLES

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE D | CODE IDENT NO. 26512 | LDW280-18572

SCALE FULL | SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18573

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 118	LDW280-66569	LTA-8 (18)	2 EA
PART NO. LDW280-18573-13, -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 118	LDW280-66569	LTA-8 (18)	1 EA
PART NO. LDW280-18573-11, -12, -15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

		GRUMMAN REL INFO		
LAST SECT LTR USED	—	PRIM NO.	(001)	
LAST DASH NO. USED	-19	207	MP-16	6/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 1021-23 (CCA 498	

OK

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	LUNDSTEN	RELIABILITY	
LAYOUT BY	FIORELLO 5/21/68	THERMO	5/28/68
CHECKED BY	R. KACHALA 5/18/68		
GR. LEADER	5-22-68		
VEH DES INT	5/23/68		
STRUCTURES	NM WJR 5/29/68	PROJ ENGR	J. 5/31/68
STRUCTURES	5/29/68	REL GROUP	6-1-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT
DESCENT STAGE ~ SCIENTIFIC EQUIP. BAY SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18573
SCALE	NONE	SHEET 1.00 OF 3

CDR 6-14-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18573-19	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 2 x 3	NONE	88	
		-17	↕	ANGLE	↕	↕	2024-T3	.063 x 3 x 3	NONE	88	
		-15	↕	CHANNEL	↕	↕	2024-T3	.032 x 5 x 7	NONE	↕	
		-13	↕	GUSSET	↕	↕	2024-T3	.032 x 2 x 3	NONE	↕	
		-12	↕	SUPPORT	↕	↕	2024-T3	.032 x 4 x 12	NONE	↕	
		LDW280-18573-11	E	SUPPORT	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x 4 x 12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18573

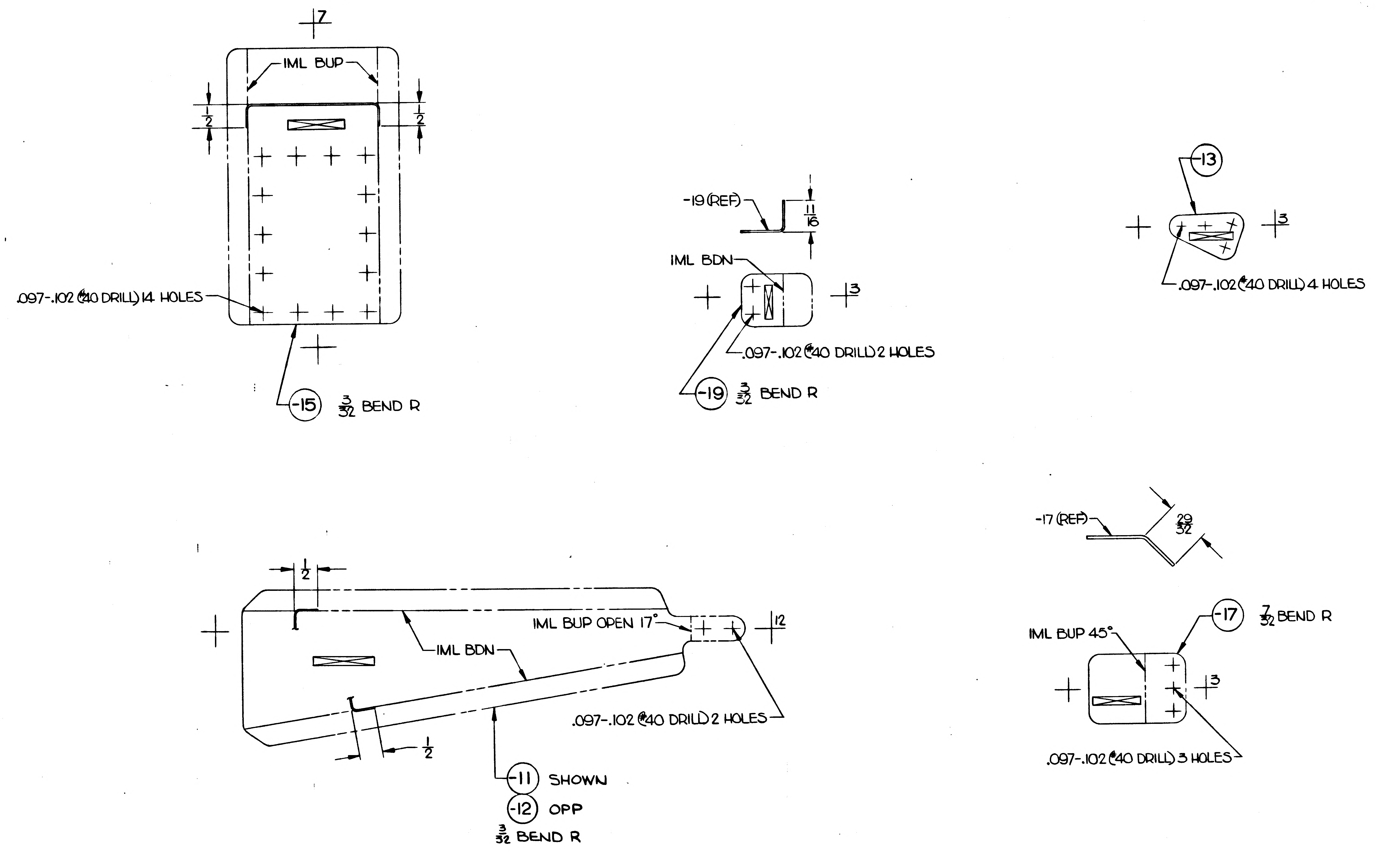
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


7
IML BUP
1/2
1/2
.097-.102 (#40 DRILL) 14 HOLES
-15 3/32 BEND R
-19 (REF)
11/16
IML BDN
3
.097-.102 (#40 DRILL) 2 HOLES
-19 3/32 BEND R
-13
3
.097-.102 (#40 DRILL) 4 HOLES
-17 (REF)
29/32
IML BUP 45°
-17 7/32 BEND R
3
.097-.102 (#40 DRILL) 3 HOLES
1/2
IML BUP OPEN 17°
12
IML BDN
.097-.102 (#40 DRILL) 2 HOLES
1/2
-11 SHOWN
-12 OPP
3/32 BEND R

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
F	26512	LDW280-18573

MODEL OR END ITEM
SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

01
NAS 9-1100

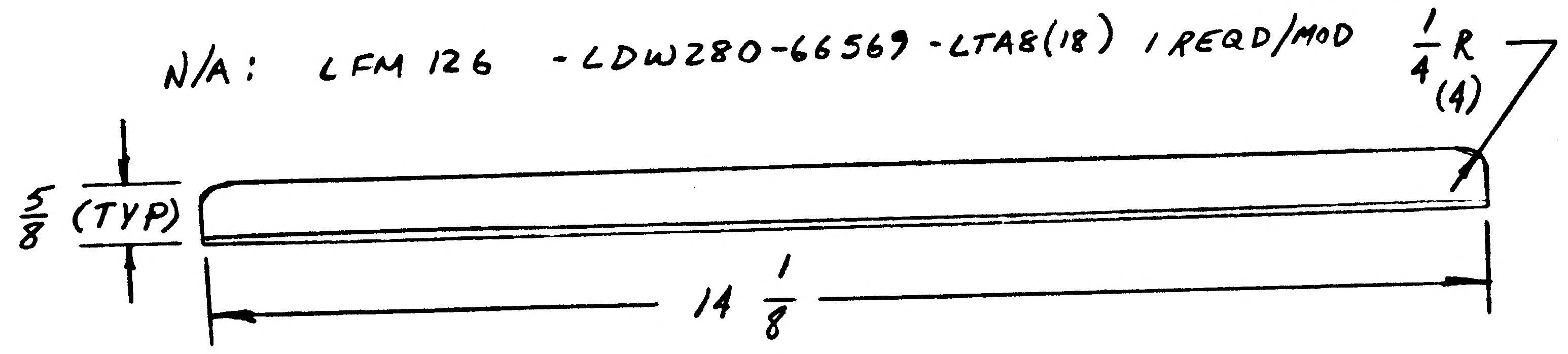
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18573		EO NO. A1
CONTROL INFO NO. LM 52-2351		

ADD -21 AS SHOWN
MAKE FROM 2024-T3 AL. ALY SHT (.032)
QQ-A-250/4 BEND R 3/32 FIN 88 ANODIZE PER
LSP 14-9030

N/A: LFM 126 -LDW280-66569 -LTA8(18) 1 REQD/MOD



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1021-33 CCA 498

(52)

REASON FOR EO: STIFFENER REQD TO HOLD STANDOFFS

DESCRIPTION OF EO: ADDED -21

GAEC EO RELEASE: JK 8/19/68

MODEL	EFFECTIVITY: EI		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM126	LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS											
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	RKW			—					
✓		NOT	REQD.	DATE	8/2/68	8/14/68		—	8-2-68		8-2-68	8/14/68	
					MSC EOG ENG.	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFF. D/S - QUAD II - SUPT INSTL (MOD)	LDW280-18573	A1

ISSUED BY DON RAGAS X4606 SECTION VDI GROUP NO. 280 PL 52

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

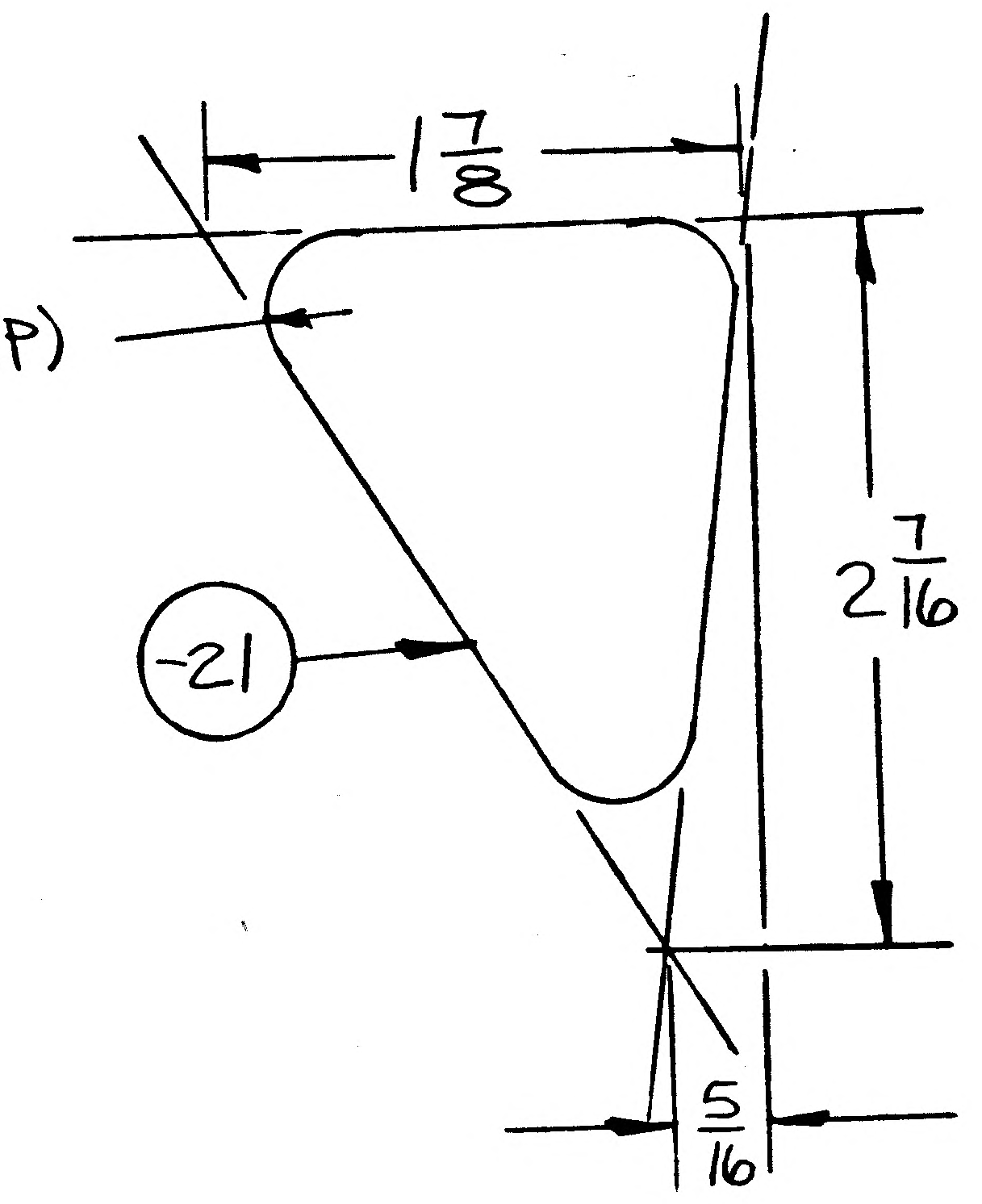
DWG. NO. LDW280-18513 | EO NO. A3

CONTROL INFO NO. LDW280B 3844

SCRAP (-19)

ADD (-21) DBLR

.032 ~ 7075-T6 AL ALLOY SHT ~
1 REQD/VEH ~ N/A LDW280-54679 ~
FIN 88 ~ QQ-A-250/12



LCD 3075 CCA 586 PKG 2U SH 28.2
LCD 1433 CCA 586 PKG 13 SH8 ✓

⑤

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

REASON FOR EO: TO STIFFEN SEQ BAY UPPER DECK.

DESCRIPTION OF EO: ADDED -21 SCRAPPED -19

GAEC EO RELEASE: H.F. 6/11/68

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JaP							LM
✓			-19	DATE	6/10/68			6/10	6/11/68		6/11/68	6-11-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45), DVT(70),	
LM		TM-5/R(65)	

PRIORITY: C

DRAWING TITLE: CHANNEL ~ DS ~ SEQ BAY ~ UPR DECK ~ CABLE BRKT SUPT

DRAWING NO.: LDW280-18513

EO NO.: A3

6-15-68 6-14-68
ISSUED BY G. BELEV \ G. HANSMANN 6-8-68 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18575

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM118	LDW280-66569	LTA-8(18)	2
PART NO. LDW280-18575-15			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM118	LDW280-66569	LTA-8(18)	1 EA
PART NO. LDW280-18575-11,-13 & -17			

WORK PACKAGE FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-17	PRIM NO. 207	JK(001) MP-16	6/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT ☐
CLASS II ENGRG CHANGE ☐
CLASS I ENGRG CHANGE ✓
LCD-1021-23, CCA-498

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	B. REYES 4-30-68	RELIABILITY	
LAYOUT BY	GORTLER 5/13/68	THERMO	5/28/68
CHECKED BY	5-11-68		
GR LEADER	5-21-68		
VEH DES INT			
STRUCT	w/61 5/29/68	PROJ ENGR	5/31/68
STRUCT	5/29/68	REL GROUP	6/1/68
WEIGHTS			

Ⓚ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE ~ QUAD II ~ ASTRONAUT DOOR ~ UPPER HINGE SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18575
SCALE NONE | SHEET 1.00 OF 3

CDR 6-14-68

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	LDW280-18575-17	E		CLIP	AL ALY SH	QQ-A-250/4	2024-T3	.040 × 2 × 3	NONE	88	3A
	-15			PLATE	AL ALY SH	QQ-A-250/4	2024-T3	.040 × 2 × 2	NONE	88	3C
	-13			BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.040 × 4 × 11	NONE	88	2A
	LDW280-18575-11	E		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.040 × 5 × 9	NONE	88	4B

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18575

SCALE NONE

SHEET 2.00

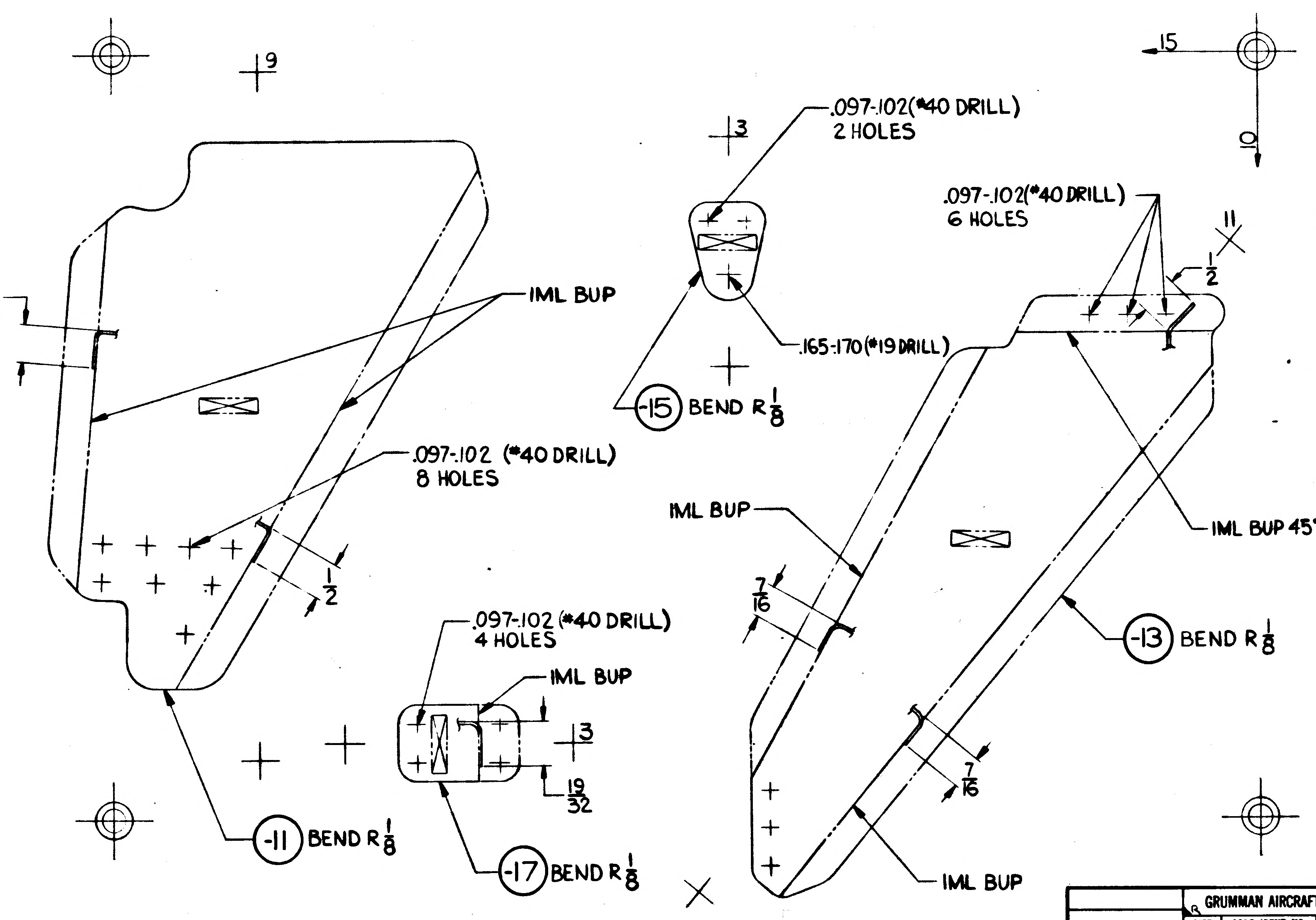
ENG 77.2 5-64

01

NAS 9-1100

TRAN. O.K.
TS 4-11-60

NOTES:
1. TOOLING HOLES NOT PERMITTED IN THESE PARTS.



9
13
15
10
11
.097-.102(#40 DRILL)
2 HOLES
.097-.102(#40 DRILL)
6 HOLES
1/2
IML BUP
.165-.170(#19 DRILL)
-15 BEND R 1/8
.097-.102 (#40 DRILL)
8 HOLES
IML BUP
IML BUP 45°
7/16
2
-13 BEND R 1/8
.097-.102(#40 DRILL)
4 HOLES
IML BUP
13
19/32
7/16
-11 BEND R 1/8
-17 BEND R 1/8
IML BUP

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18575
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18575

01

NAS 9-1100

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
								LFM 118	LDW280-66569	LTA-8 (18)	1EA

PART NO.	GAEC SCH NO.	PART NO.	GAEC SCH NO.	PART NO.	GAEC SCH NO.
				LDW280-18576-11,-13,-15,-17&-19	

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL'G INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-19	207	mP-16 6/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD1021-23~CCA498

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	C.DAVELLA 5-9-68	RELIABILITY	
LAYOUT BY	J.TAVARES 5-20-68	THERMO	5-28-68
CHECKED BY	5-18-68		
GR.LEADER	Thorgersen 5-21-68		
VEH.DES.INT.	5/21/68		
STRUCT	5/28/68	PROJ ENGR	J. Lusatcu 5/31/68
STRUCT	5/29/68	REL GROUP	L. Marsh 6/1/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ QUAD II
L.H. END CLOSURE ~ TRUSS SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18576

SCALE NONE
SHEET 1.00 OF 3

CDR 6-14-68

ENG 77.1 9-64

01

NAS 9-1100

QTY PEP ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18576-19	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.032X 3X4	T6	88	
		-17		ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.080X 3X4	T6	88	
		-15		PLATE	AL ALLOY SH.	QQ-A-283	7075-T6	.045X 2X4	NONE	88	
		-13		GUSSET	AL ALLOY SH.	QQ-A-250/12	7075-T6	.063X 3X4	NONE	88	
		LDW280-18576-11	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.050X 5X5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18576

SCALE NONE SHEET 2.00

ENG 77.2 7-65

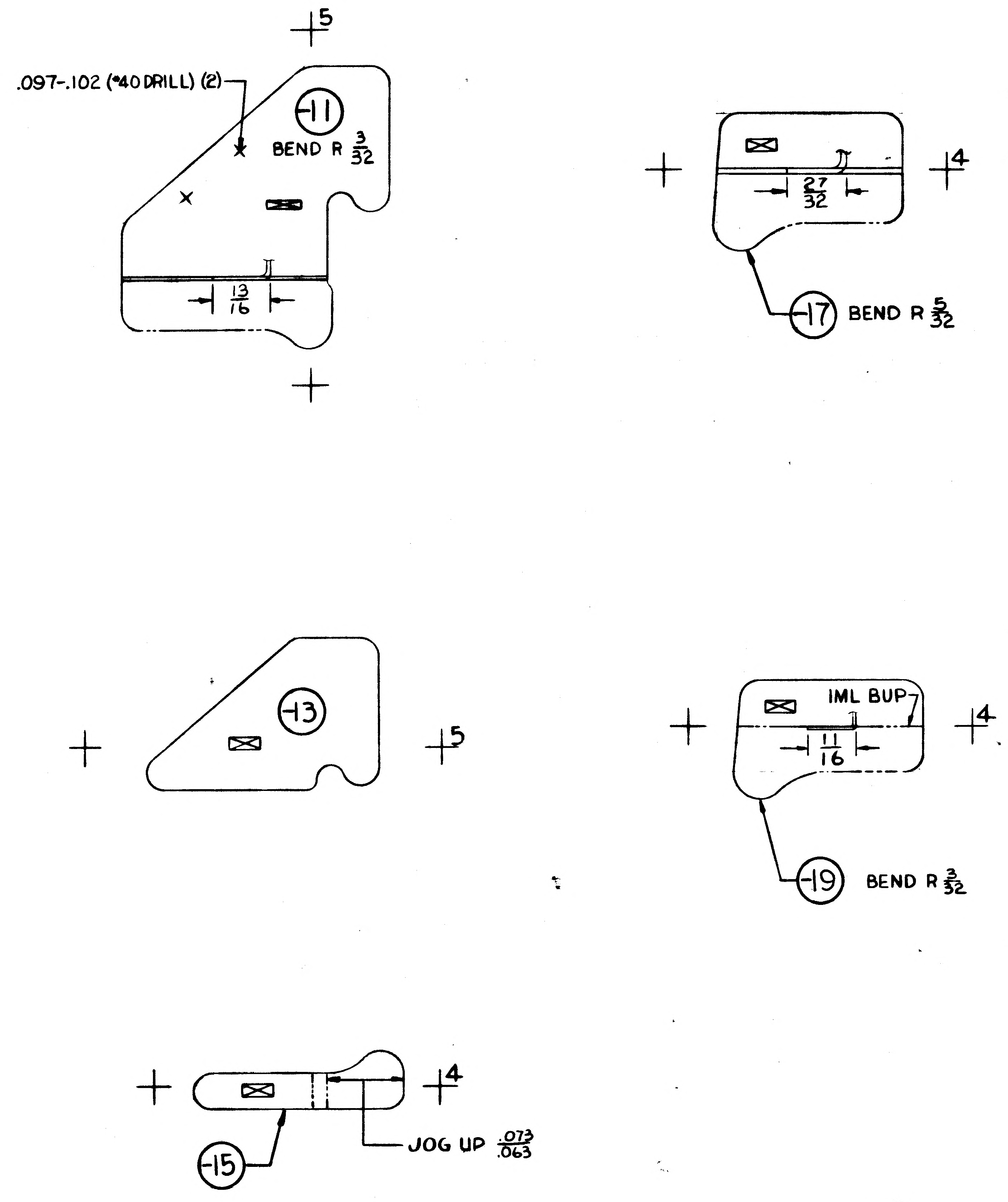
0 1

NAS 9-1100

LDW280-18576

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± $\frac{1}{32}$	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.


.097-.102 (#40 DRILL) (2)
-11
BEND R $\frac{3}{32}$
$\frac{13}{16}$
-17
BEND R $\frac{5}{32}$
$\frac{27}{32}$
-13
IML BUP
$\frac{11}{16}$
-19
BEND R $\frac{3}{32}$
-15
JOG UP $\frac{.073}{.063}$
5
4

25
15

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18576

SCALE FULL SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

LDW280-18577

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM118	LDW280-66569	LTA-8(18)	1 EA
PART NO. LDW280-18577-11,-12,-13,-15 & -17		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-17	PRIM NO.	JK(001)	
		207	MP-16-	5/25/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD1021-23(CCA498)	

OK

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II	
DRAWN BY	A. SCHMADTKE 4-29-68	RELIABILITY		
LAYOUT BY	J. ROGERS 5-14-68	THERMO	Jeff 5-20/68	
CHECKED BY	J.D. 5-13-68			
GR LEADER	G.H. Thoyusen 5-18-68			
VEH DES INT	J. Pugatere 5/18/68			
STRUCT	5/21/68	PROJ ENGR	J. Pugatere 5/23/68	
STRUCT	5/23	REL GROUP	Marsh 5-23-68	
WEIGHTS				

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - ASTRO DOOR-LOWER
HINGE SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18577
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

C.D.R. 6-14-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18577-17	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	DIE #65332 X 2 X 5 3/8	T73	SEE NOTE #2	
		-15		DOUBLER	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 X 3 X 9	NONE	88	
		-13		DOUBLER				.050 X 3 X 10			
		-12		CHANNEL				.050 X 4 X 12			
		LDW280-18577-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024-T3	.050 X 4 X 12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP 14-9030
T73	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18577

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

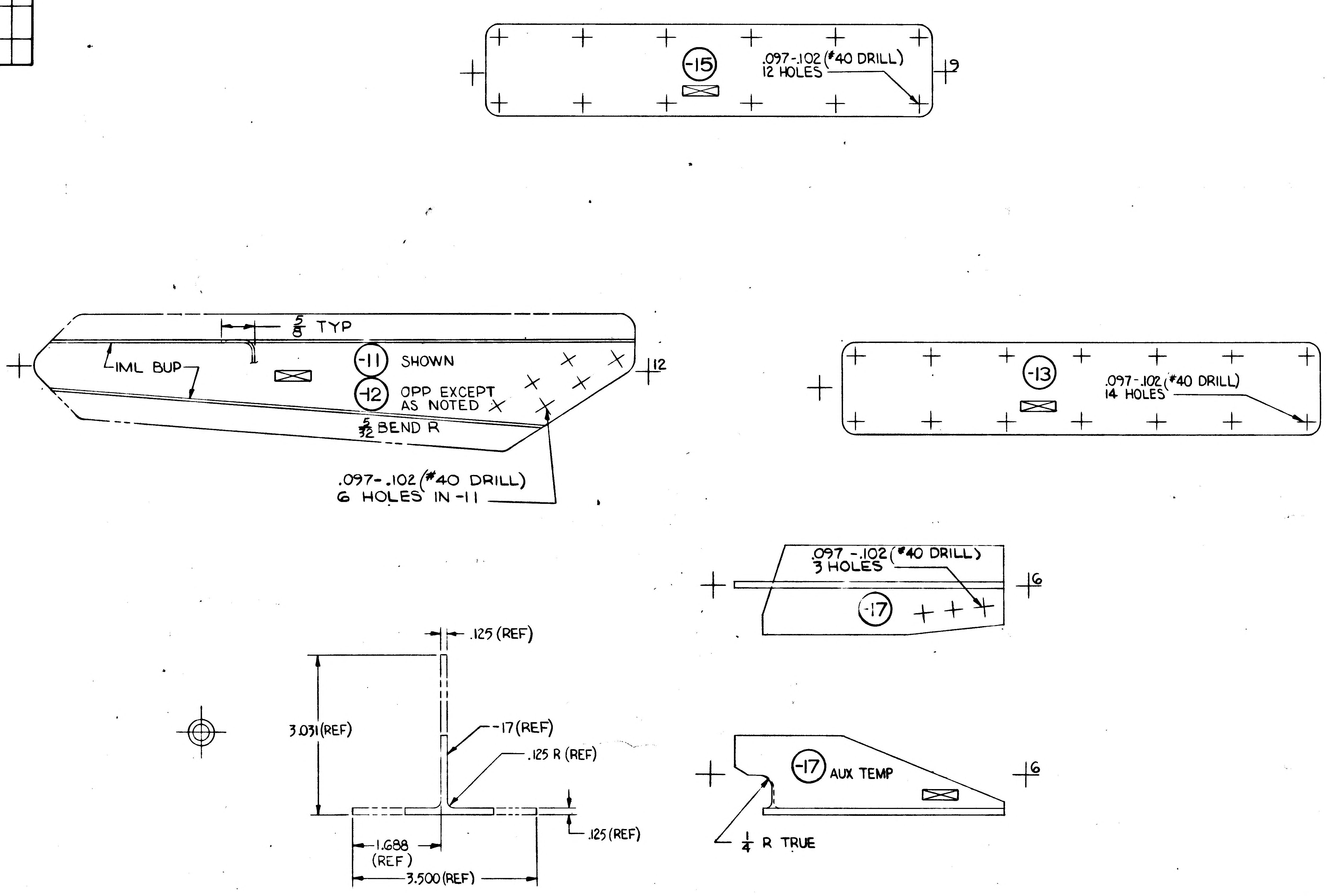
Q1

NAS 9-1100

LDW280-18577

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. SULPHURIC ACID ANODIZE PER MIL-A-8625, TYPE II.


25
15
-15
.097-.102 (#40 DRILL)
12 HOLES
9
$\frac{5}{8}$ TYP
IML BUP
-11 SHOWN
-12 OPP EXCEPT AS NOTED
12
$\frac{5}{32}$ BEND R
.097-.102 (#40 DRILL)
6 HOLES IN -11
-13
.097-.102 (#40 DRILL)
14 HOLES
10
.097-.102 (#40 DRILL)
3 HOLES
-17
6
.125 (REF)
3.031 (REF)
-17 (REF)
.125 R (REF)
.125 (REF)
1.688 (REF)
3.500 (REF)
-17 AUX TEMP
6
$\frac{1}{4}$ R TRUE

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18577
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18577 | EO NO. A1
CONTROL INFO NO. LDW280B3857

CREATE -18 IDENTICAL TO AND OPPOSITE TO -17 (I&T=E.)
REMOVE LTA-8(18) EFFECTIVITY FROM -17.

-18 REPLACES -17 IN MOD BLOCK & B/M.

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD1021-23 PKG #4 (CCA 498)

REASON FOR EO: OPP. PART REQ'D FOR ASTRO DOOR SPT.

DESCRIPTION OF EO: ADDED -18, REMOVED -17.

GAEC EO RELEASE: JK 6/12/68

MODEL	EFFECTIVITY: EI		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM118	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-17 SCRAP

APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	6/11/68			6/10	[illegible]		[illegible]	6/12/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: CHANNEL ~ DESCENT STAGE ~ ASTRO DOOR ~ LWR HINGE SUPPORT
DRAWING NO. LDW280-18577
EO NO. A1

C.DR. 6-14-68
ISSUED BY J. J. ROGERS/P. THORJUSEN X1392 SECTION VEH DES & INT GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18577
EO NO. A1
CONTROL INFO NO. LDW280B3857

CREATE -18 IDENTICAL TO AND OPPOSITE TO -17 (I&T=E.)
REMOVE LTA-8(18) EFFECTIVITY FROM -17.

-18 REPLACES -17 IN MOD BLOCK & B/M.

NO CCRP

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD1021-23 PKG #4 (CCA 498). (5)

REASON FOR EO: OPP. PART REQ'D FOR ASTRO DOOR SPT.

DESCRIPTION OF EO: ADDED -18, REMOVED -17.

GAEC EO RELEASE: C JK 6/15/68

MODEL	EFFECTIVITY: EI		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM118	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-17
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	6/11/68			6/10	6/11/68	6/11/68	6-14-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ DESCENT STAGE ~ ASTRO DOOR ~ LWR HINGE SUPPORT	LDW280-18577	A1

C.DR. 6-14-68

ISSUED BY J. J. ROGERS / P. THORJUSEN X1392 SECTION VEH DES & INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18583 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53504	LM-3(33)	1 EA
PART NO. LDW280-18583-13, -15		GAEC SCH NO. 52	

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 VK(001) MP-1A 9-23-?

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/16 ±1/2°

S ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2721 (CCA959)

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	BARNES 4-26-68	RELIABILITY	
LAYOUT BY	BARNES 4-26-68	THERMO	W 4-26-68
CHECKED BY	J.G. 5-22-68		
GR LEADER	PST 4-26-68		
VEH DES/INT	JHS 4-26-68		
STRUCT	NM 4-26-68	PROJ ENGR	JAP 4-26-68
STRUCT		REL GROUP	BOTTI 4-27-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPACER
DESCENT STAGE - PLUMBING
ACCESS COVER - FITH SHIELD

SIZE B

CODE IDENT NO. 26512

LDW280-18583 A (A)

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00,1.10 2.00,3.00		S		✓		EO A1 LCD 2721	EOA1 INITAL DRAWING RELEASE, PARTS MADE PER EO.	LM-3(33)	NOT	REQD	R.PRIZZI 5-2-68		5-23-68
	2	1.00,2.00 3.00		P		✓		EOA2(CCA959) LCD 2721 PKG3	CREATED -15; REMOVED -11	LM-3(33)		-11			
	3	1.00,2.00 3.00		Ⓡ		✓		EOA3(CCA959) LCD2721 PKG3	ON-15 REF EOA2 FIN. NONE (WAS) FIN # 88 ADDED 3 3/4 DIMENSION O.Y.JG	LM-3(33)	✓				

CHG APP	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
	A						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18583	A Ⓐ
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18583-13	E	ANGLE	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 X 5 X 10	T3	88	
								LDW280-18583-15	E	PLATE	LAMINATED SH	QQ-A-318	5052-H39	.438 X 6 X 5	T651	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18583	A

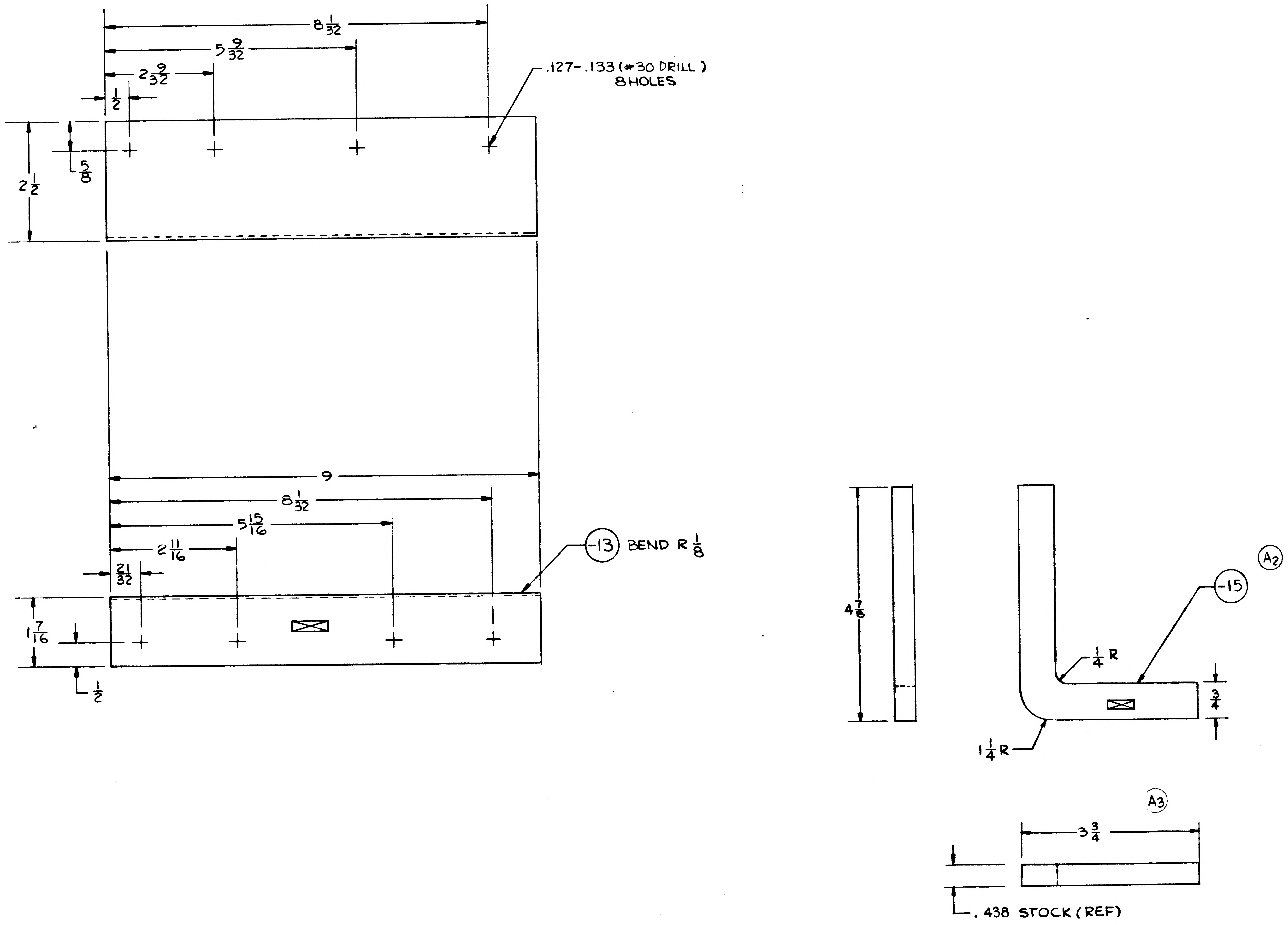
SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐



8 1/32
5 9/32
2 9/32
1/2
.127-.133 (#30 DRILL)
8 HOLES
2 1/2
5/8
9
8 1/32
5 15/16
2 11/16
21/32
-13 BEND R 1/8
1 7/16
1/2
4 7/8
A2
-15
1/4 R
3/4
1 1/4 R
A3
3 3/4
.438 STOCK (REF)

01

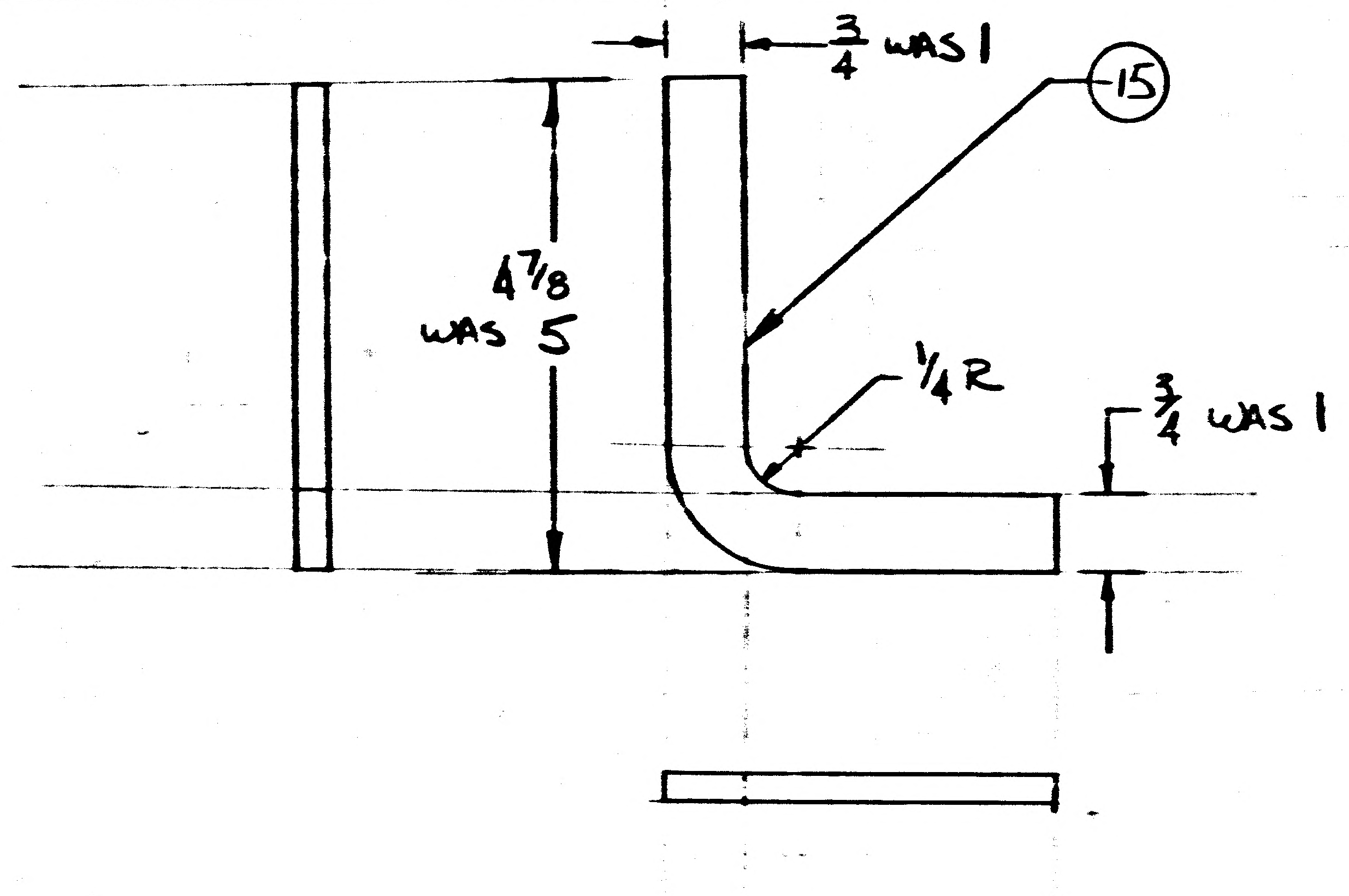
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE F	CODE IDENT NO 26512	LDW280-18583	A
SCALE FULL		SHEET 3.00	

ENG 73.5 REV. 5-67

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG NO. LDW280-18583
EO NO. A2
CONTROL NO. LDW280B3141



CREATE -15
IDENTICAL TO -11
EXCEPT AS SHOWN.
REMOVE -11
N/A LDW280-53504

MAKE FROM 5052-H39
LAMINATED SHEET.
QQ-A-318

7/16 THICKNESS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2721 PKG. 3 CCA 559 (5)

REASON FOR EO: INTERFERENCE OF FIBERGLASS PART

DESCRIPTION OF EO: CREATED -15; REMOVED -11

CHECK & EO RELEASE: JK 4/3?/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP -11
APPROVED BY / DATE: Ø; VDI 4/29/68; SUPPORT; REL AB GROUP; GROUP LEADER 4/29/68; STRESS GROUP NH 4/29/68; LIAISON ENGRG; PROJ. ENGRG 4/29/68
PRIORITY: C
DRAWING TITLE: SPACER ~ D/S ~ PLUMBING ACCESS COVER ~ FITH SHIELD
DRAWING NO.: LDW280-16583
EO NO.: A2

ISSUED BY J LUCCHESI / H. PALLMEYER x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 3? REV 3-65 RELEASED BY LIAISON

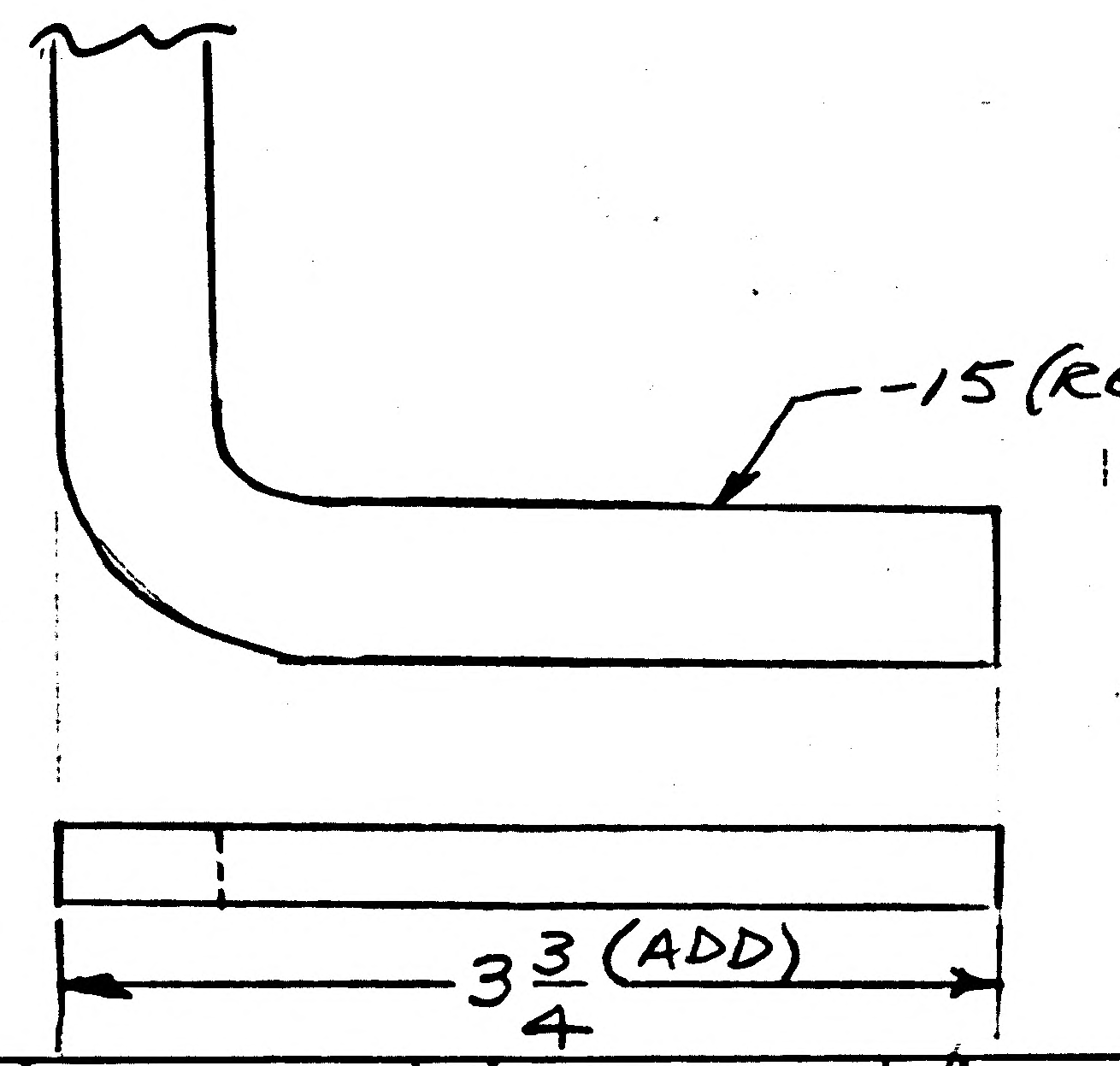
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18583		EO NO.	A3
CONTROL INFO NO. LM-5-19877			

ON-15

① FIN. 88 (S/B) NONE

②



NOT TO SCALE

THIS IS A REV OF
EO A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2721 PKG-3 CCA 959 (5)

REASON FOR EO
FIN #88 WILL SEPARATE LAMINATIONS

DESCRIPTION OF EO
ON-15 REF EO A2
FIN. NONE. (WAS) FIN # 88
ADDED 3 3/4 DIMENSION

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	M.D.	J.W.			DV			
DATE	4-30	5/2/68			4/29/68	4-29-68	5/2/68	4/30/68
		~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	D.EO

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SPACER ~ D/S ~ PLUMBING ACCESS COVER ~ FITH SHLD	LDW280-18583	A3

ISSUED BY LIAISON M. RUSEVICH M.D. REYES X8675 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18583
EO NO. B1
CONTROL INFO NO. LDW280B3216

FOR -13 ADD LM-4 EFF (WAS LM-3 ONLY)
N/A -13 LDW280-53504
1 REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ X LCO 2721 CCA 959 PKG 4

REASON FOR EO: BURST DISC ADDITION

DESCRIPTION OF EO: FOR -13, ADDED LM-4 EFF

GAEC EO RELEASE: HF 5/7/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		MO		PST	NJM		JAP	
DATE	5/3/68	5/6/68		5-3-68	5/6/68		5/6/68	5-7-68
	V01	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CGT~~

PRIORITY: C
DRAWING TITLE: SPACER - D/S PLUMBING ACCESS COVER - FITH SHIELD
DRAWING NO.: LDW280-18583
EO NO.: B1

051068
ISSUED BY ROESSLER/THORJUSEN SECTION V01 X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18585 A

SHIP

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23519	QUAL TEST	1
↕	↕	TM 5/R(65)	1
		LM 15(45)	1
		THRU	
	LDW280-23519	LM 5(35)	1
	LTM280-50609	TM 5/R(65)	7
	LDW280-56561	LM 15(45)	2
		THRU	
	LDW280-56561	LM 6(36)	2
LM	LDW280-54561	LM 5(35)	2
LFM 164	LMU280-31216	M3(03)	3
LM	LDW 280-55724	LM 5(35)	5
↕	LDW280-55724	LM-15(45)	6
		THRU	
	LDW280-55724	LM-6(36)	6
LM	LDW280-54665	LM-4(34)	3

PART NO. LDW280-18585-11

WORK PKG FUNCTION NO. 110 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	3.00			
REV	A	A	A					
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-3A 12/4/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD1433CCA586

CONTRACT NO. NAS9-1100

DRAWN BY	C.DAVELLA 5-1-68	RELIABILITY	
LAYOUT BY	J.WYNN hC.	MATERIAL	
CHECKED BY	JOHN BELL 5/1/68	THERMO	5/9/68
GROUP LDR	5-10-68		
VEH.DES.INT.	5/10/68		
STRUCT.	NM WJH 5/13/68	PROJ ENGR	J. 5/13/68
STRUCT.		REL GROUP	5-14-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE-SEQ BAY
THERMAL SHIELD-RETAINER

SIZE B | CODE IDENT NO. 26512 | LDW280-18585 | A

SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

CDR 5/13/68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 & 1.10				✓		LEO 280-964A LCD 3095 CCA 586	ON -11 ADDED TM-5/R (65) REQMTS ADDED SHEET 1.10	TM 5/R (65)	NOT	REQD	OBERNIER 10-23-68	J.V.	
	2	1.00 & 1.10		LFM 164		✓		EOA2 LCD 3049 CCA 1064	ON -11 ADDED END ITEM LFM 164 REQMTS.	M3 (03)	NOT	REQD			
	3	1.00 & 1.10		S		✓		EOA3 LCD 2011 CCA 668 LCD 3025 CCA 586	FOR -11 ADDED N/A LDW280-54561 EFF LM-5(35) THRU LM 15 (45) & N/A LTM 280-50609 EFF TM 5/R (65)	LM 5 (35) THRU LM 15(45) TM 5/R (65)	NOT	REQD			
	4	1.00 & 1.10				✓		EOA4 LCD 3075 CCA 586	FOR -11 N/A LTM 280-50609 7 REQ'D/VEH WAS 2 REQ'D/VEH	TM 5/R (65)	NOT	REQD			
	5	1.00 & 1.10		S		✓		EOA5 LCD 2011 CCA 668 LCD 3075 CCA 586 LCD 3128	FOR -11 ADD N/A LDW280-23519 EFF LM 5(35) THRU LM 15(45) TM 5/R (65) QUAL TEST (72)	LM 5 (35) THRU LM 15(45) TM 5/R (65) QUAL TEST (72)	NOT	REQD			
	6	1.00 & 1.10				✓		EOA6 LCD 2360 ECPA 078-CC	IN M/B FOR -11 ADDED N/A LDW280-55724 EFF LM 5 (35) (5) REQ'D/MOD	LM 5(35)	NOT	REQD			
	7	1.00 & 1.10				✓		EOA7 LCD 3179	FOR -11 REVISED N/A LDW280-56561 WAS LDW 280-54561 & LDW280-56665 WAS LDW 280-54665	LM 6(36) THRU LM 15(45)	NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	MATL.	THERMO			
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-18585	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	8	1.00				✓		EOA8 LCD2360	IN M/B FOR -11 ADD EFF: LM-6(36) THRU LM-15(45) N/A LDW‿30-55724. ADDED SH. 1.11	LM-6(36) THRU LM-15(45)	NOT	REQ'D	L. GAVRIL 11-24-68		
	9	1.00				✓		EOA9 CCA1278 LCD3179	IN THE M/B REMOVED FOR -11 N/A LDW280-56665.			-11			
	10	1.00				✓		EOA10 CCA586 ⑥	IN M/B FOR -11 DELETED LM-5(35), DVT(70) TM5/R EFF ON N/A LDW280-54665	LM-5(35) DVT(70) TM5/R(65)		-11			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	MAT'L	THERMO			
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18585	A Ⓐ
SCALE NONE		SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18585-11	E	CLIP	CRES SH	MIL-S-25043	17-7PH COND TH 1050	.020 X 1½ X 3½	NOTE 3	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18585
SCALE NONE
SHEET 2.00

ENG 77.2 7-66

01

NAS 3-1100

ENG 77.2 4-67

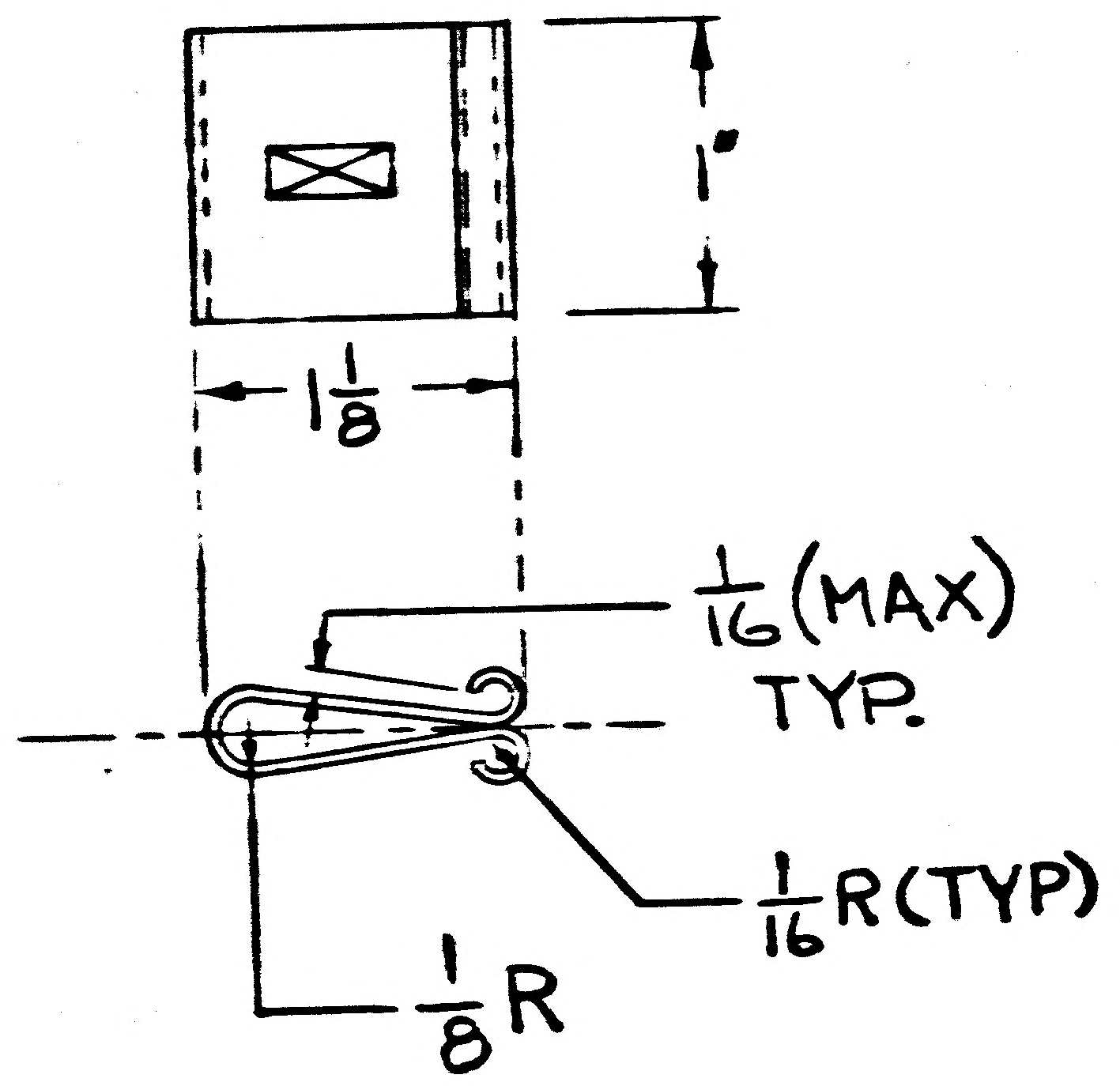
SUPPLEMENTARY DATA

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN. NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES

1. NO TOOLING HOLES PERMITTED IN PART.
2. CLIP TO BE FORMED WITH AN INITIAL 4 TO 6 POUND PRE LOAD.
3. STEEL HEAT TREAT 180,000 PSI ROCKWELL C39 TO C44 PER LSP14-5102.



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18585	
SCALE FULL			SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18585
EO NO. A2
CONTROL INFO NO. LDW280B3766

IN M/B FOR -11
ADD N/A LMU280-31216, EFF M-3(03), 3 REQD/VEH

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3049	CCA 1064	PKG 5 (5)

REASON FOR EO: ADDITIONAL REQMTS

DESCRIPTION OF EO: ON-11 ADDED END ITEM LFM 164 REQMTS.

GAEC EO RELEASE: JK 6/10/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM164	M-3(03)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	6/3/68			6-3-68	6/5/68		6/5/68	6-8-68
REVISE DWG	RECORD EO	REWORK	SCRAP		UD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP~DS~SEQ BAY~THERMAL SHIELD~RETAINER	LDW280-18585	A2

6-7-68
ISSUED BY G. BELEV/HANSMANN
SECTION VEH DES INT
GROUP NO. 335
PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG 32.1 REV 3-65
ENGINEERING ORDER

DWG. NO. LDW280 18585
EO NO. A6
CONTROL INFO NO. LDW280B5811

IN M/B FOR-11

ADD N/A LDW280-55724 EFF: LM-5(35) (5) REQ/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 ECP A078 CC PKG #19

REASON FOR EO: REDESIGNED SBAND ANT. ACCESS PANEL.

DESCRIPTION OF EO: IN M/B FOR-11
ADDED N/A LDW280-55724 EFF LM-5(35) (5) REQ/MOD

GAEC EO RELEASE: C 10-12-68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO NOT REQ'D

DISPOSITION OF PARTS: REWORK SCRAP

APPROVED BY	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	10/10/68	10/10/68		10-9-68	10/11/68		10/11/68	10/14/68

PRIORITY: C
DRAWING TITLE: D/S SEQ BAY THERMAL SHIELD CLIP & RETAINER
DRAWING NO.: LDW280-18585
EO NO.: A6

101868
ISSUED BY R. CLARK/P THORJUSEN SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18585		EO NO. A7	
CONTROL INFO NO. LDW280-B5878			

FOR -11

FOR LM-6(36) THRU LM-15(45) REVISE NEXT ASSEMBLY TO:

LDW 280-56561 (WAS LDW280-54561)

LDW 280-56665 (WAS LDW280-54665)

SWIP

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3179 (PKG9)	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDUCTION OF THERMAL SHIELDING DO TO REVISION OF PLUME HEATING RATES	FOR -11 REVISED N/A. LDW280-56561 WAS LDW280-54561 & LDW280-56665 WAS LDW280-54665	Ⓡ C JK 10/16/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQ'D

APPROVED BY		MR						
DATE	10/14/68	10/15/68		10-14-68	10/15/68		10/15/68	10-16-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP DESCENT STAGE - SEQ BAY. THERMAL SHIELD ~ RETAINER	LDW 280-18585	A7

CDR 110168

ISSUED BY JOSEPH BISZ / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				RJT				
DATE	4/8/69			4-2-69	4/8/69		4/9/69	[illegible]

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1382

052869
ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 780

CONTROL INFO NO. LDW280B7935

FOR *, N/A LDW280-23519 DELETE
LM-10(40) THRU LM-14(44) EFF.

DWG NO.*	DASH NO*	DWG TITLE	CHG NO
LDW280-18585	-11	SEE DWG	B2
↕ M71510	-11	↕	B1
-66507	-1		A3
LDW280-66517	-1	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG 2

(5)

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR *, DELETED LM-10(40) THRU LM-14(44) N/A LDW280-23519

GAEC EO RELEASE: JK 12/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY					VJB			
DATE	12/5/69			12/5/69	12/10/69		12/10/69	12/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO. LEO280

EO NO. 780

CDR 12/12/69

ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18586

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54524	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
	LDW280-54524	LM-4(34)	1 EA
LM	LDW280-52524	LM-3(33)	1 EA

PART NO. LDW280-18586-11

WORK PKG FUNCTION NO. 110

LINE ITEM

DOCUMENTATION TYPE II (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00								
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 VK(001) MP-16 5/3/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2360

CONTRACT NO. NAS9-1100

DRAWN BY J. BIANCHINO 5-2-68
LAYOUT BY V. CHRISTINA
CHECKED BY D. FASS 5-2-68
Sp LEADER Thojusen 5-2-68
Veh Des Int 5/2/68
STRUCTURE 5/2/68
STRUCTURE

WEIGHTS

RELIABILITY

PROJ ENGR 5/2/68

REL GROUP 5-3-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP-
DESCENT STAGE -QUAD III
THERMAL

SIZE B

CODE IDENT NO. 26512

LDW280-18586 (-)

SCALE NONE

SHEET 1.00 OF 3

G 77.1 12-65

CDR 051068

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	NET	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18586-1		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.071 x 2 x 4	TG	BB	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
TG	AL HEAT TREAT	MIL-H-6088
BB	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH:
NONE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE L. I. NEW YORK

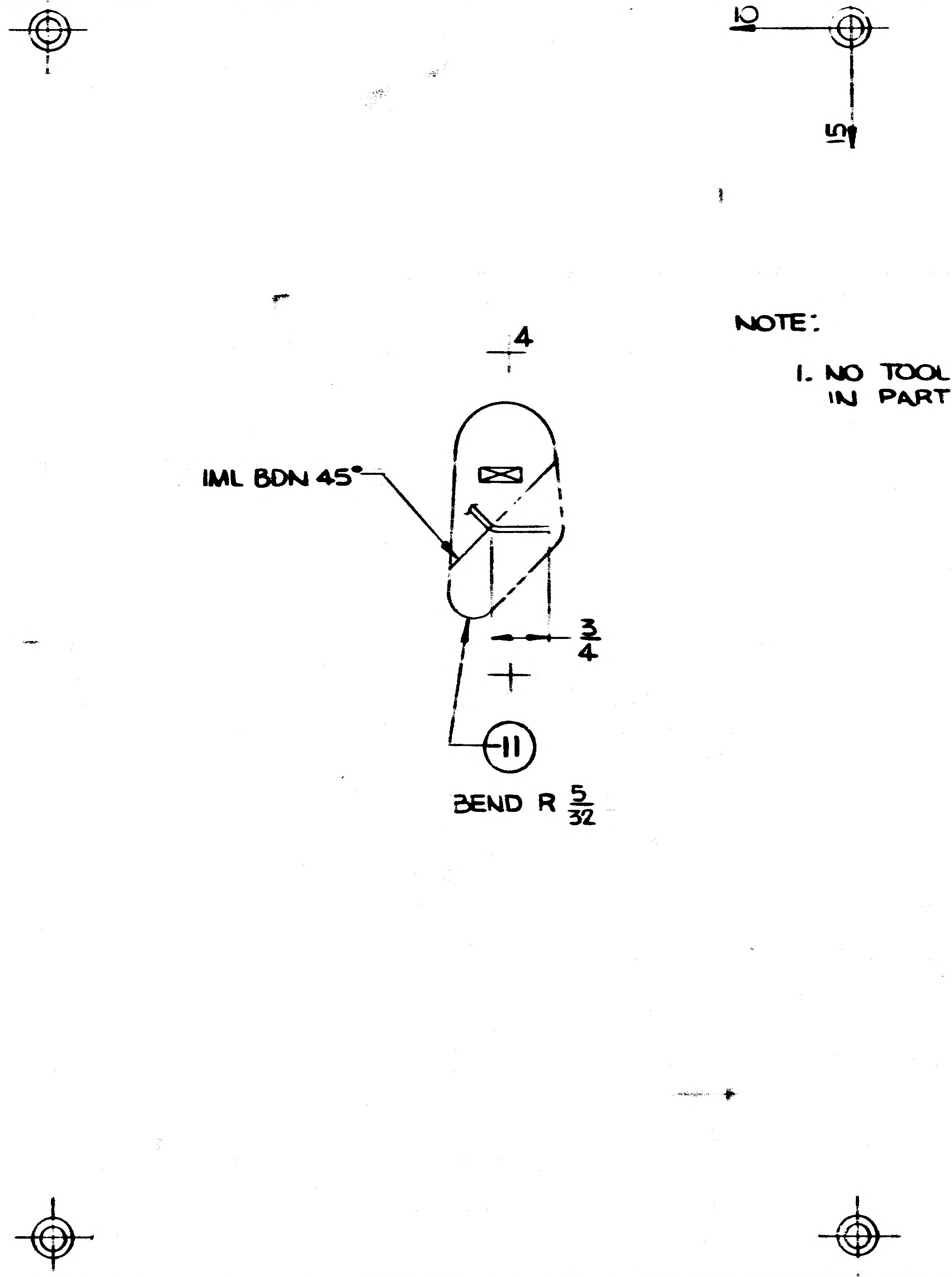
SIZE	CODE IDENT NO.	
B	26512	LDW280-18586

SCALE NONE

SHEET 2.00

01

NAS 9-1100



NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ UNP BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .000R TO .062R ± .010 .062R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .005-.030	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, MS & NS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18586
	SCALE FULL		SHEET 3.00

LDW280-18586

LDW280-18586

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586 ✓	A1	
-18590	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1382

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1558
CONTROL INFO NO. LDW 280B - 121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-1[illegible]	SEE DWG	
-18586		A2
590		A5
592		A4
593		B2
594		A2
595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: 8-13-69; JK 8/13/69; Bauman 8-15-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQ'D

APPROVED BY	PJT				M		
DATE	7-29-69			7/29/69	8-2-69		8/2/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ml) SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

LDW280-18588

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
LM	LDW280-60522	LM-10(40)	1
PART NO. LDW280-18588-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54526	LTA-11(23	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
	LDW280-54526	LM-10(40	1
	LDW280-54524	LTA-11(23	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
LM	LDW280-54524	LM-10(40)	1
PART NO. LDW280-18588-11		GAEC SCH NO. 51-5	

WORK PKG FUNCTION NO. 110 ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO 3/2/13			
LAST DASH NO. USED	-13	PRIM NO.	HF-001		
		207	ME-16	10/15/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3994 PKG 61

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	HERB. SCHWETER 9/24/69		
LAYOUT BY	J. TAVARES 9-25-69		
CHECKED BY	D. FASS 9-25-69		
GR. LEADER	Thorjussen 9-30-69		
VEH DES INT	F. DeLespinois 10-1-69		
STRUCTURES	WK 10/10/69	PROJ ENGR	Whitley 10/13/69
STRUCTURES	VJH 10/10/69	REL GROUP	L. Marsh 10-15-69

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE~ END BULKHEAD~MODULE
EQUIP STOWAGE TRUSS FITTING SPRT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18588
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 101769

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NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18588-13	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040 X 2 X 2	T6	88	
								LDW280-18588-11	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.032 X 1 X 3	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18588

SCALE NONE

SHEET 2.00

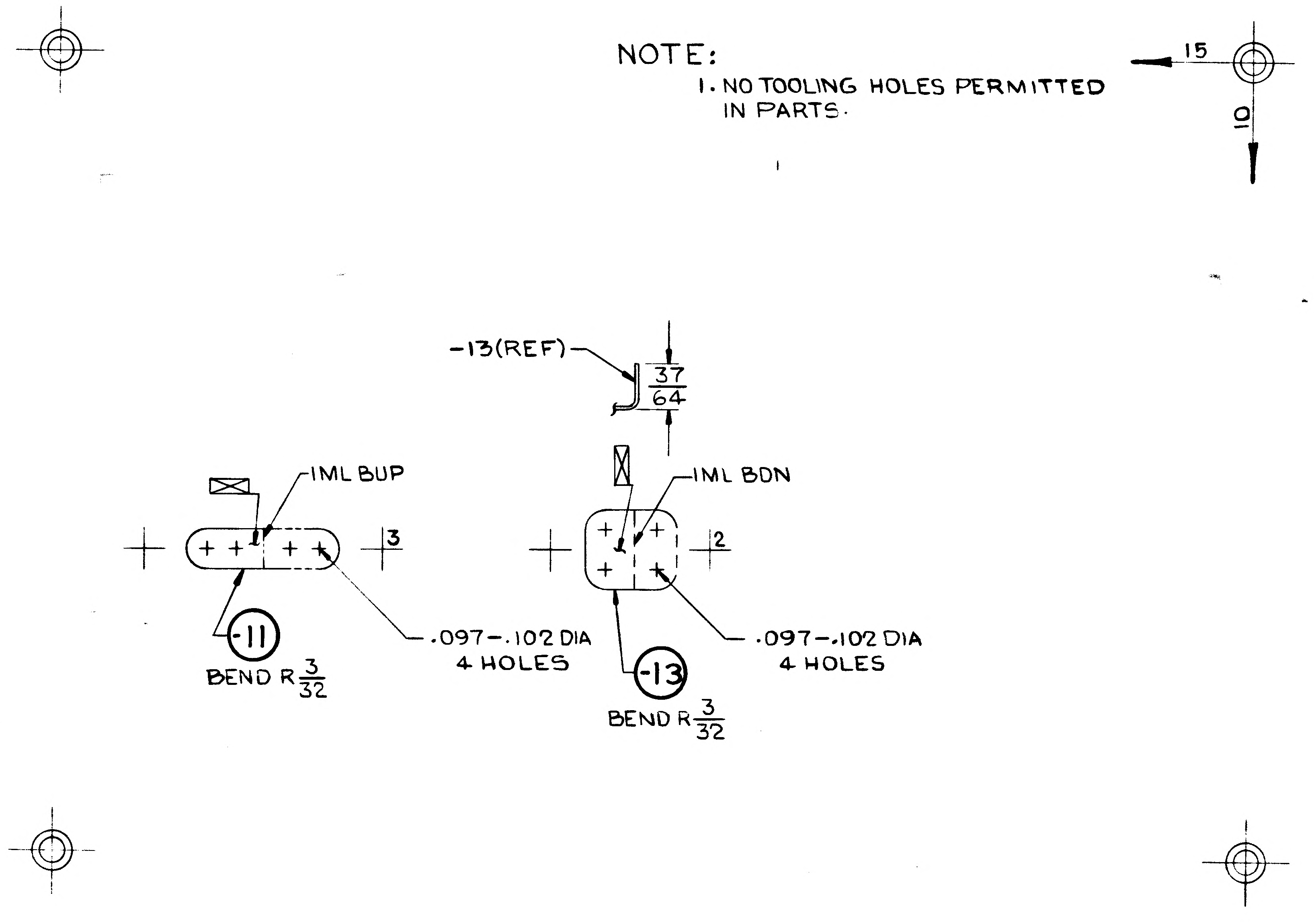
ENG 77.2 7-65

01

NAS 9-1100

TRAN OK
TS 9-24-69

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18588
	SCALE FULL		SHEET 3.00

LDW280-18588

FOR PHOTO REPRODUCTION

K2

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18588
EO NO. A1
CONTROL INFO NO. LDW280C0-75

FOR -11 & N/A LDW280-54526
REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG ✓ LCD5538 PKG 52

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH G.S.E., BKT REPLACED.

DESCRIPTION OF EO: FOR -11 & N/A LDW280-54526 REMOVED LM-10(40) THRU LM-14(44) EFFECTIVITY

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	RSH				WJH		
DATE	5-20-70			5/20/70	5/21/70		5/21/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - END BULKHEAD ~ MESA TRUSS CLIP FITTING SUPT.	LDW280-18588	A1

CDE 5/22/70
ISSUED BY G. BARNES / G. HANSMANN x87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18589

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60537	LTA-11(23)	1 EA
		LTA-3DR/1(46)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60537	LM-10(40)	1 EA
PART NO. LDW280-18589-13,-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54526	LTA-11 (23)	1 EA
		LTA-3DR/1(46)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-54526	LM-10(40)	1 EA
PART NO. LDW-280-18589-11;12;15		GAEC SCH NO. 51-5 51-6	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED ~

LAST DASH NO. USED -17

GRUMMAN REL INFO SAL B

PRIM NO. 207 JK(001) ME-16- 10/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3994 - PKG 61

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY W. CONROY 9-30-69

LAYOUT BY T. FURIO 10/9/69

CHECKED BY Ladas 10/2/69

GR LEADER Thorjusen 10-15-69

VEH DES INT F. DeRespinis 10-15-69

STRUCTURES NM G.P. 10-16-69

STRUCTURES WJH 10/16/69

PROJ ENGR R. Phillips 10/16/69

REL GROUP 10/16/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE LH END BULKHEAD
PAYLOAD TRUSS SPRT

SIZE B

CODE IDENT NO. 26512

LDW280-18589

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-17-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18589-17	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.090 X 2X14	T6	88	
		LDW280-18589 -15	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 4X9	T6	83	
		-13		ANGLE				.040 X 2 X 15			
		-12		ANGLE				.036 X 2 X 12			
		LDW280-18589-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.036 X 2 X 12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18589

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

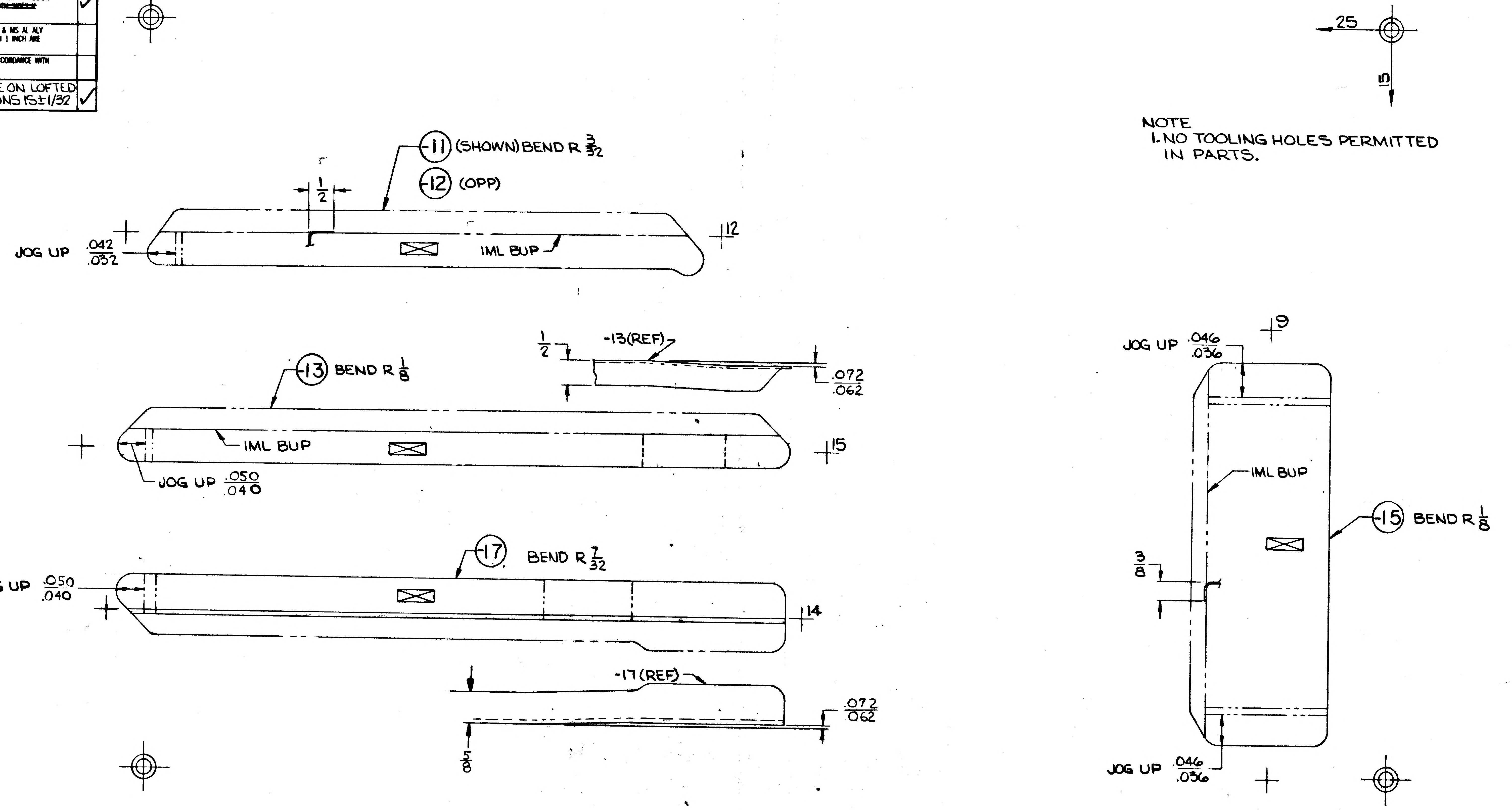
01

NAS 9-1100

TRAM O.K.
TS 9.29.69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
-11 (SHOWN) BEND R 3/32
-12 (OPP)
1/2
JOG UP .042/.032
IML BUP
12
-13 BEND R 1/8
IML BUP
JOG UP .050/.040
15
1/2
-13 (REF)
.072/.062
-17 BEND R 7/32
JOG UP .050/.040
14
-17 (REF)
.072/.062
.045
JOG UP .046/.036
9
IML BUP
-15 BEND R 1/8
3/8
JOG UP .046/.036

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18589

SCALE FULL
SHEET 3.00

FOR PHOTO 1 REPRODUCTIO

NAS 9-1100

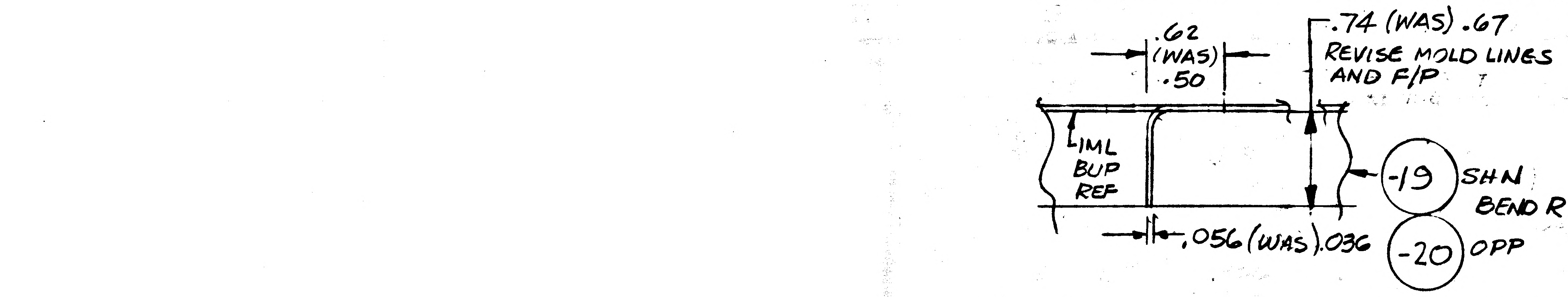
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18589		EO NO. A1
CONTROL INFO NO. LDW280C0331		

CREATE -19 SHN -20 OPP IDENT RESP TO -11 SHN -12 OPP EXCEPT AS SHN.

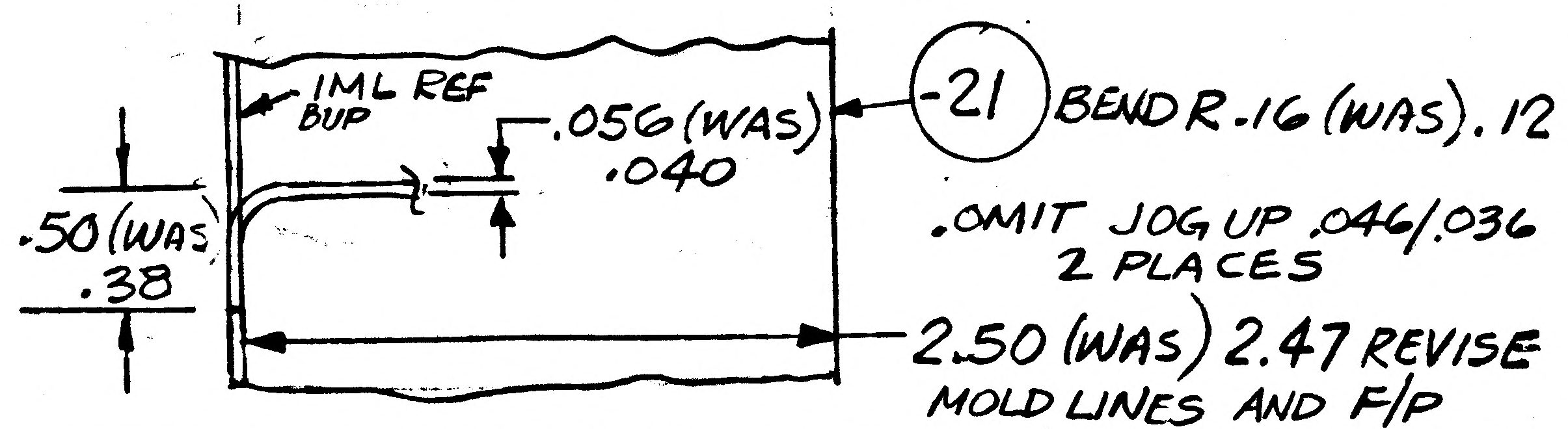


.62 (WAS) .50
.74 (WAS) .67
REVISE MOLD LINES AND F/P
IML BUP REF
-19 SHN
BEND R.16 (WAS) .09
.056 (WAS) .036
-20 OPP

EFF LM-10(40) THRU LM-14(44), LTA-11(23) AND LTA-3DR/1(460) N/A LDW280-54526 1 EA REQD/VEH. 1 & T=E

REMOVE -11 & -12 FOR ALL EFF

CREATE -21 IDENT TO -15 EXCEPT AS SHN.



IML REF BUP
.056 (WAS) .040
-21
BEND R.16 (WAS). 12
.50 (WAS .38
.OMIT JOG UP .046/.036 2 PLACES
2.50 (WAS) 2.47 REVISE MOLD LINES AND F/P

EFF LM-10(40) THRU LM-14(44), LTA-11(23) AND LTA-3DR/1(460) N/A LDW280-54526 1 REQD/VEH 1 & T=E

REMOVE -15 FOR ALL EFF

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG 61 PAGE 3

REASON FOR EO: (MWC) STRENGTH REQD FOR SPRT OF LRV TRUSS STRUCT.

DESCRIPTION OF EO: ADDED -19, -20, AND -21 REMOVED -11, -12 AND -15

Ⓡ GAEC EO RELEASE

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-3DR/1(460)		
LM	LTA-11(23)		
LM	LM-10(40)	THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11 -12 -15

APPROVED BY	GH						
DATE	4/14			4/14/70	4/14/70	4/14/70	4/14/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE-DESCENT STAGE-LH BULKHEAD PAYLOAD TRUSS SPRT	LDW280-18589	A1

4/14/70
ISSUED BY J. LANG / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18590

PART NO. LDW280-18590-12

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-5(35)	12
LM		LM-6(36)	12
LM		LM-7(37)	12
LM		LM-8(38)	12
LM		LM-9(39)	12
LM		LM-10(40)	12
LM		LM-11(41)	12
LM		LM-12(42)	12
LM		LM-13(43)	12
LM		LM-14(44)	12
LM	LDW280-66663	LM-15(45)	12

PART NO. LDW280-18590-19,-21,-22

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW250-66663	LM-5(35)	4 EA
LM		LM-6(36)	4 EA
LM		LM-7(37)	4 EA
LM		LM-8(38)	4 EA
LM		LM-9(39)	4 EA
LM		LM-10(40)	4 EA
LM		LM-11(41)	4 EA
LM		LM-12(42)	4 EA
LM		LM-13(43)	4 EA
LM		LM-14(44)	4 EA
LM	LDW280-66663	LM-15(45)	4 EA

PART NO. LDW280-18590-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-5(35)	12
LM		LM-6(36)	12
LM		LM-7(37)	12
LM		LM-8(38)	12
LM		LM-9(39)	12
LM		LM-10(40)	12
LM		LM-11(41)	12
LM		LM-12(42)	12
LM		LM-13(43)	12
LM		LM-14(44)	12
LM	LDW280-66663	LM-15(45)	12

PART NO. LDW280-18590-13,-14,-20

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-5(35)	3 EA
LM		LM-6(36)	3 EA
LM		LM-7(37)	3 EA
LM		LM-8(38)	3 EA
LM		LM-9(39)	3 EA
LM		LM-10(40)	3 EA
LM		LM-11(41)	3 EA
LM		LM-12(42)	3 EA
LM		LM-13(43)	3 EA
LM		LM-14(44)	3 EA
LM	LDW280-66663	LM-15(45)	3 EA

PART NO LDW280-18590-15,-17,-23

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-5(35)	1 EA
LM		LM-6(36)	1 EA
LM		LM-7(37)	1 EA
LM		LM-8(38)	1 EA
LM		LM-9(39)	1 EA
LM		LM-10(40)	1 EA
LM		LM-11(41)	1 EA
LM		LM-12(42)	1 EA
LM		LM-13(43)	1 EA
LM		LM-14(44)	1 EA
LM	LDW280-66663	LM-15(45)	1 EA

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -23

GRUMMAN REL INFO

PRIM NO. 207 VdOO1 MP-16 7/19/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
U ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965
OK PRIT 1

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY LUNDSTEN
LAYOUT BY STILWELL 7-16-68
CHECKED BY Ben Mazziano 6-29-68
GR LEADER 7/8/68
VEH DES INT C. Paratore 7/8/68
STRUCTURES W/U 7/16/68
STRUCTURES 7/1
WEIGHTS
RELIABILITY
PROJ ENGR J. Paratore 7/16/68
REL GROUP 7/12/68
NO

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE ~ REMOVABLE HEAT SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18590
SCALE NONE
SHEET 1.00 OF 3

CDR 7-12-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18590-23	E	STIFFENER	TITANIUM SH	MIL-T-9046 TYPE III COMP-C ANL	6AL-4V	.030 × 6 × 17	NOTE 2	NONE	
		-22						.030 × 6 × 26			
		-21						.030 × 6 × 26			
		-20						.030 × 6 × 20			
		-19						.030 × 6 × 20			
		-17						.030 × 6 × 19			
		-15						.030 × 6 × 16			
		-14						.030 × 6 × 17			
		-13						.030 × 6 × 17	NOTE 2		
		-12						.030 × 6 × 21	NOTE 3		
		LDW280-18590-11	E	STIFFENER	TITANIUM SH	MIL-T-9046 TYPE III COMP-C ANL	6AL-4V	.030 × 6 × 21	NOTE 3	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM-MILL, TITANIUM	LSP14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18590

SCALE NONE

SHEET 2.00

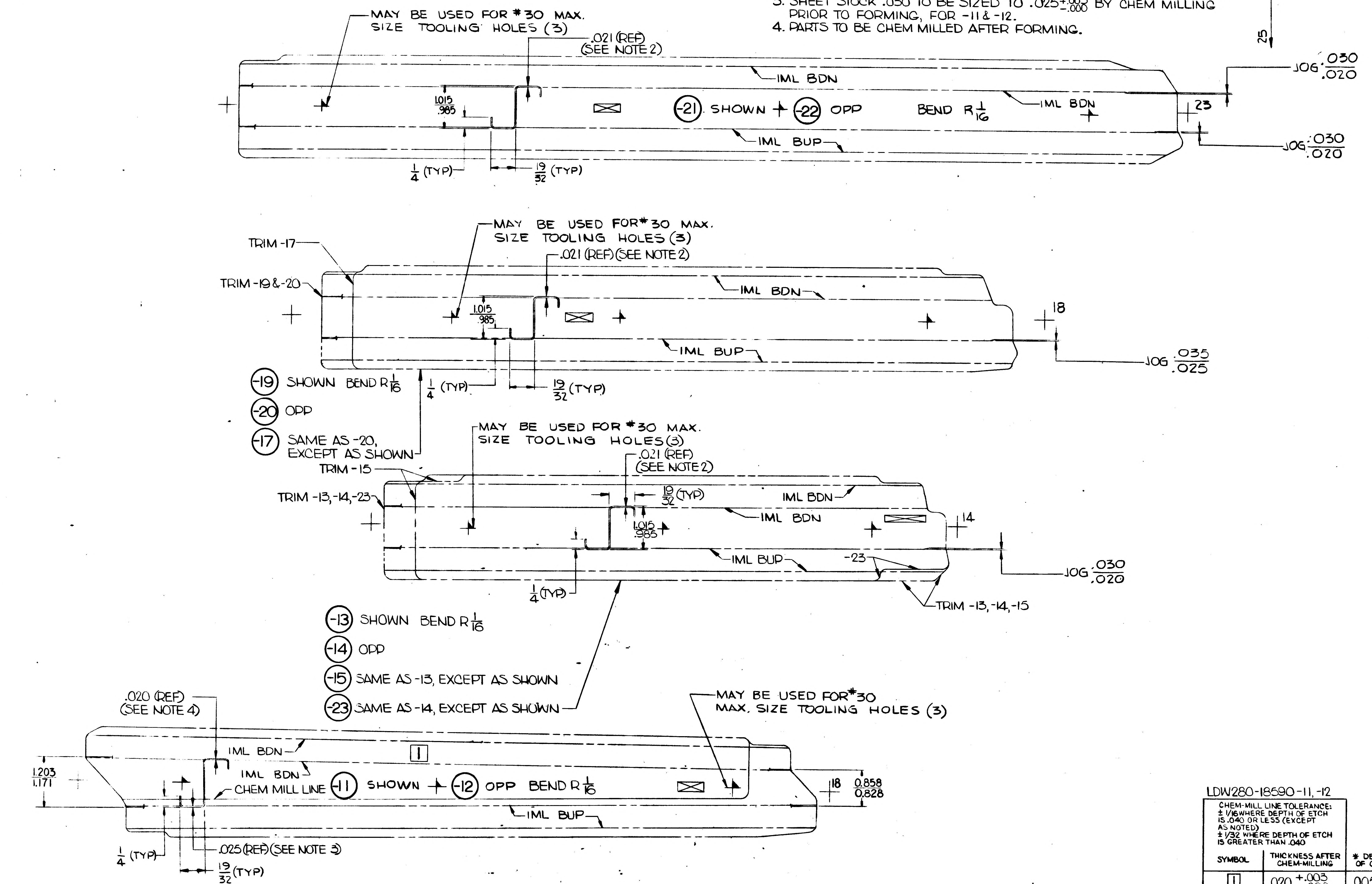
ENG 77.2 7-65

0 1

NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS, EXCEPT AS NOTED.
2. SHEET STOCK .030 TO BE SIZED TO $.021^{+.003}_{-.000}$ BY CHEM MILLING PRIOR TO FORMING, FOR -13,-14,-15,-17,-19,-20,-21,-22,-23.
3. SHEET STOCK .030 TO BE SIZED TO $.025^{+.003}_{-.000}$ BY CHEM MILLING PRIOR TO FORMING, FOR -11 & -12.
4. PARTS TO BE CHEM MILLED AFTER FORMING.



MAY BE USED FOR #30 MAX. SIZE TOOLING HOLES (3)
.021 (REF) (SEE NOTE 2)
IML BDN
1.015 / .985
-21 SHOWN -22 OPP
BEND R 1/16
IML BDN
IML BUP
23
JOG .030 / .020
JOG .030 / .020
1/4 (TYP)
19/32 (TYP)
30
25
TRIM -17
TRIM -19 & -20
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLES (3)
.021 (REF) (SEE NOTE 2)
IML BDN
1.015 / .985
IML BUP
18
JOG .035 / .025
1/4 (TYP)
19/32 (TYP)
-19 SHOWN BEND R 1/16
-20 OPP
-17 SAME AS -20, EXCEPT AS SHOWN
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLES (3)
.021 (REF) (SEE NOTE 2)
TRIM -15
TRIM -13, -14, -23
19/32 (TYP)
IML BDN
IML BDN
1.015 / .985
14
IML BUP
-23
JOG .030 / .020
1/4 (TYP)
TRIM -13, -14, -15
-13 SHOWN BEND R 1/16
-14 OPP
-15 SAME AS -13, EXCEPT AS SHOWN
-23 SAME AS -14, EXCEPT AS SHOWN
.020 (REF) (SEE NOTE 4)
MAY BE USED FOR #30 MAX. SIZE TOOLING HOLES (3)
IML BDN
I
1.203 / 1.171
IML BDN
CHEM MILL LINE
-11 SHOWN -12 OPP BEND R 1/16
18
0.858 / 0.828
IML BUP
1/4 (TYP)
.025 (REF) (SEE NOTE 3)
19/32 (TYP)

LDW280-18590-11, -12

CHEM-MILL LINE TOLERANCE:
± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
I	$.020^{+.003}_{-.000}$	.005 REF

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32 EXCEPT AS NOTED	✓

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
L M	F	26512	LDW280-18590
	SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW 280-18590 | EO NO. A1
CONTROL INFO NO. LDW-280-B4907

ADD REQMTS. ON N/A LDW 280-66663 EFF: LFM 200 LM-5 (35)
FOR -11 & -12 - (12) EA/MODULE
-19 -21 & -22 (4) EA/MODULE
-13 -14 & -20 (3) EA/MODULE
-15 -17 & -23 (1) EA/MODULE

ADD REQMTS. ON N/A LDW 280-66663 EFF. DVT 70
FOR -13, -14, -19, -20, -21 & -22 (1) EA.
FOR -11 & -12 (3) EA.

LFM

ADD NOTE * "THIS DWG AFFECTED BY LFM 200 WHICH MAY BE USED ON LM-5 (35)"

* USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965 PKG. 1 (CCA 1235) (5)

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO:
ADDED REQMTS. EFF. LFM 200 FOR -11, -12 -13, -14, -15, -17, -19, -20, -21 & -23
ADDED REQMTS. EFF. DVT 70 FOR -11, -12, -13, -14, -19, -20, -21 & -22
ADDED NOTE *

② GAEC 1C EO RELEASE: VK 8/9

MODEL	~~PROCURING ACTIVITY~~ NO. E1	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM5 (35)	
LM		DVT 70	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK | SCRAP)

APPROVED BY		TV						Bauman
DATE	7/27/68	7/29/68		7/26/68	7/29/68		8-9-68	8-9-68
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STIFFENER DESCENT STAGE - REMOVABLE HEAT SHIELD
DRAWING NO.: LDW-280-18590
EO NO.: A1

080268
ISSUED BY R. STILWELL / P. THORJUSEN X-1153 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1176
CONTROL INFO NO. LDW 280B 5631

DWG. LTR.	DRAWING No. *	RESTRICT FOR USE ON	WAS USED ON
✓ A6	LDW280 -18367 -21	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
✓ A5	LDW280-18272 -13, -15, -17, & -19	LM-2 (32) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200 LM-5(35)	LM-2 (32) THRU LM-15 (45), LFM 200 LM-5(35).
✓ A2	LDW280-18590-11, -12 -13, -14, -20, -19, -21, -22	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
	LDW280-18590 -15, -17 -23	LM-6(36) THRU LM-15(45), LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), & LFM 200 LM-5(35)
A2	LDW280-18592-11, -13 -14, -15, -16	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5 (35) THRU LM-15 (45) LFM 200 LM-5(35) DVT(70)

FOR TITLE SEE DWG.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965 PKG. 5 CCA 1235	GAEC EO RELEASE

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	10/21/68			10/19/68	10/22/68		10/22/68	10-23-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1176

CDR 10/25/68
ISSUED BY JOE LUCCHESI PR/G. ZEMAN x86046 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

KP

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.

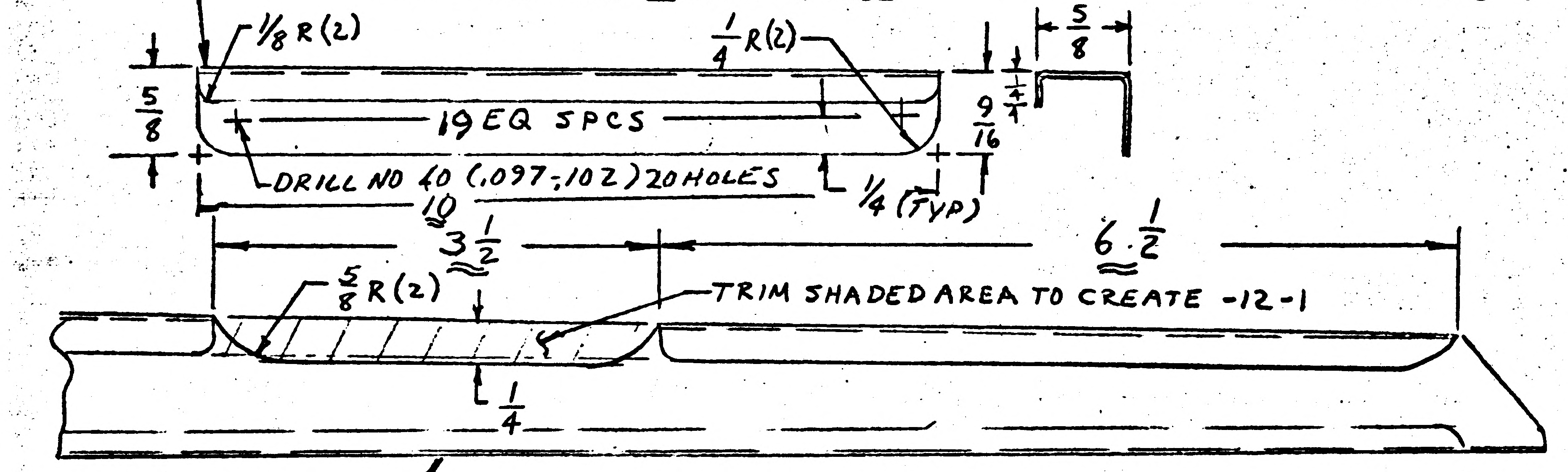
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18590		EO NO. A3
CONTROL INFO NO. LM5-30062		

ADD -25 MAKE FROM: 6AL-4V TIT. SH (.020)
MIL-T-9046 TYPE III COMP-C-ANL

N/A LDW280-66663 LFM200 (LM5)
LM6 THRU 15 (1 REQ)



ADD -12-1 (-12-1 IS IDENT TO -12 EXCEPT AS SHN)

N/A LDW280-66663 - LFM200 (LM5), LM6 THRU 15 1 REQD/MOD

IN M/B FOR -12: REVISE QTY REQD (11) WAS (12)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2965 (5)

REASON FOR EO: TO ELIMINATE INTERFEFENCE WITH PROP. LINE CONNECTION

DESCRIPTION OF EO: ADDED -25 & -12-1 IN MOD BLK REVISED QTY FOR -12 (11 REQD) WAS 12 (REQD)

GAEC/EO RELEASE: (8) (8) JC

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM 5 (35)	
LM		LM6 (36) THRU 15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP

APPROVED BY	JAS			RBST	KC	EWB	JAP	
DATE	12/13/68			12/13/68	12/5/68	12/5/68	12/13/68	12-5-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~ RLEO

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER D/S- REM. BASE HEAT SHIELD	LDW280-18590	A3

CR
ISSUED BY LIAISON D. RAGAS SECTION VDI GROUP NO. 280 PL.

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1382

CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586 ✓	A1	
-18590 ✓	A4	
-18591	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: K 4/22/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/3/69		4/9/69	4/22/69

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO. LEO 280

EO NO. 1382

052869

ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1558
CONTROL INFO NO. LDW 280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1[illegible]	SEE DWG	
✓ -18586		A2
✓ 590		A5
592		A4
593		B2
594		A3
595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 Pg 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: ® SaH 8-13-69; JK 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	APPROVED BY	DATE	
VDI	PJF	7-29-69	
SUPPORT			
RELIAB. GROUP			
GROUP LEADER		7/29/69	
STRESS GROUP	M	8-2-69	
LIAISON ENGRG			
PROJ ENGRG		8/2/69	
~~AGNT~~	Bauman	8-5-69	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18591

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66514	LM-15(45)	4
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8(38)	
		LM-7(37)	
LM		LM-6(36)	
LFM 200	LDW280-66514	LM-5(35)	4

PART NO. LDW280-18591-1 — GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED: A

LAST DASH NO. USED: -15

GRUMMAN REL INFO c

PRIM NO. 207 — JK(001) MF-16 8/10/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCR2965 CCA1235

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY T. MACAULAY 7-12-68

LAYOUT BY P. TORRACO

CHECKED BY 7-25-68

GR LEADER Thompson 8-2-68

VEH DES INT 8/3/68

STRUCT

STRUCT N. MARKELOFF 8/8/68

WEIGHTS

RELIABILITY

MATERIAL

THERMO T. Nelson 8-8-68

PROJ ENGR

REL GROUP J. Marsh

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSEMBLY WELDED DESCENT STAGE ~ BASE HEAT SHIELD EXTENSION DOOR

SIZE B — CODE IDENT NO. 26512 — LDW280-18591

SCALE NONE — SHEET 1.00 OF 3

CDR080268

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2		LDW280-18591-15	E	FIBERFAX		SEE NOTE 3		.020 X 8X8	NONE	NONE	
1		-13	↕	SKIN	NICKEL FOIL	SEE NOTE 2		.002X 8X8	↕	↕	
2		LDW280-18591-11	↕	SKIN	NICKEL FOIL	SEE NOTE 2		.0005X8X8	NONE	NONE	
		LDW280-18591-1	E	SKIN ASSY (WELDED)					FLW	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
FLW	FOIL WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18591

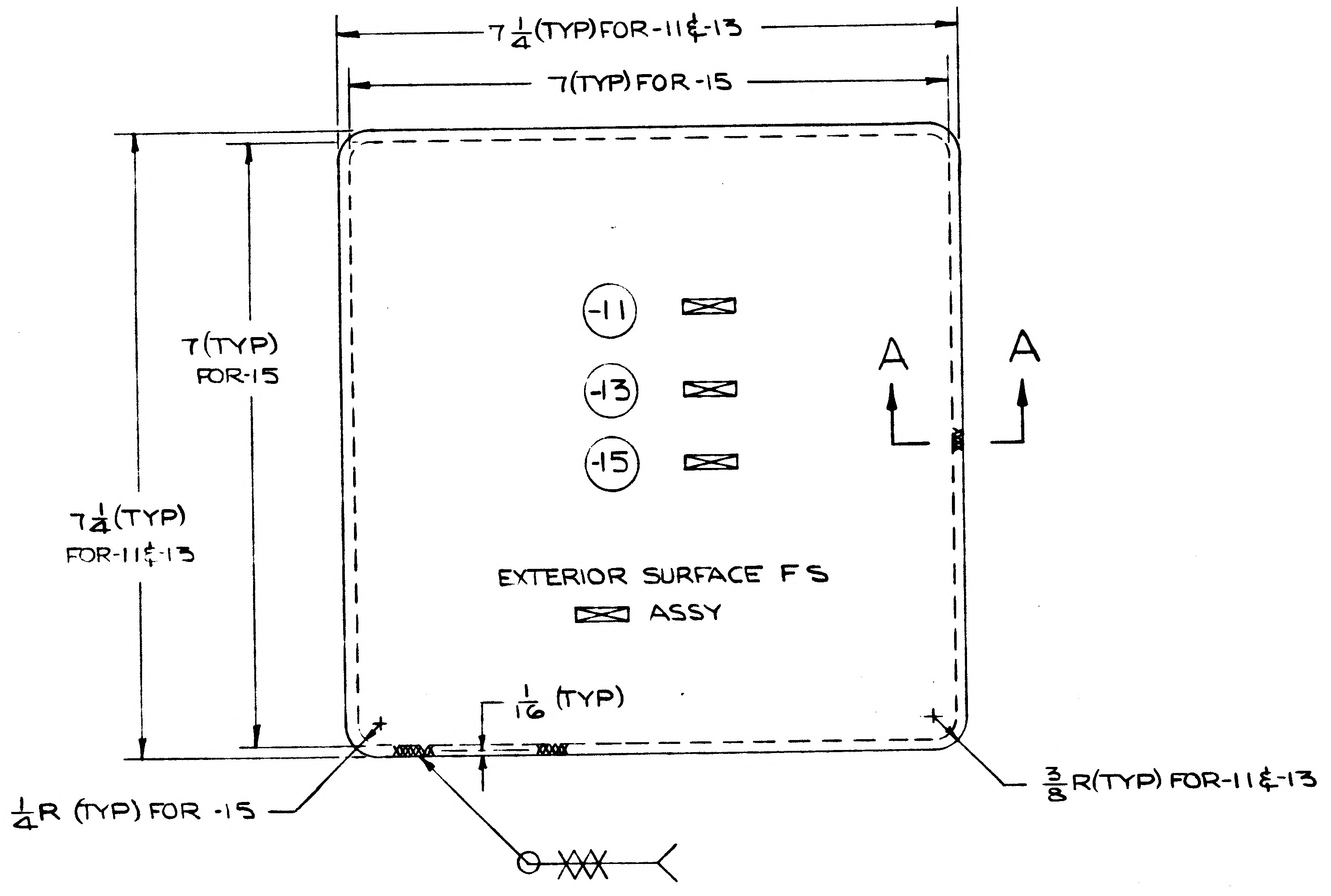
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

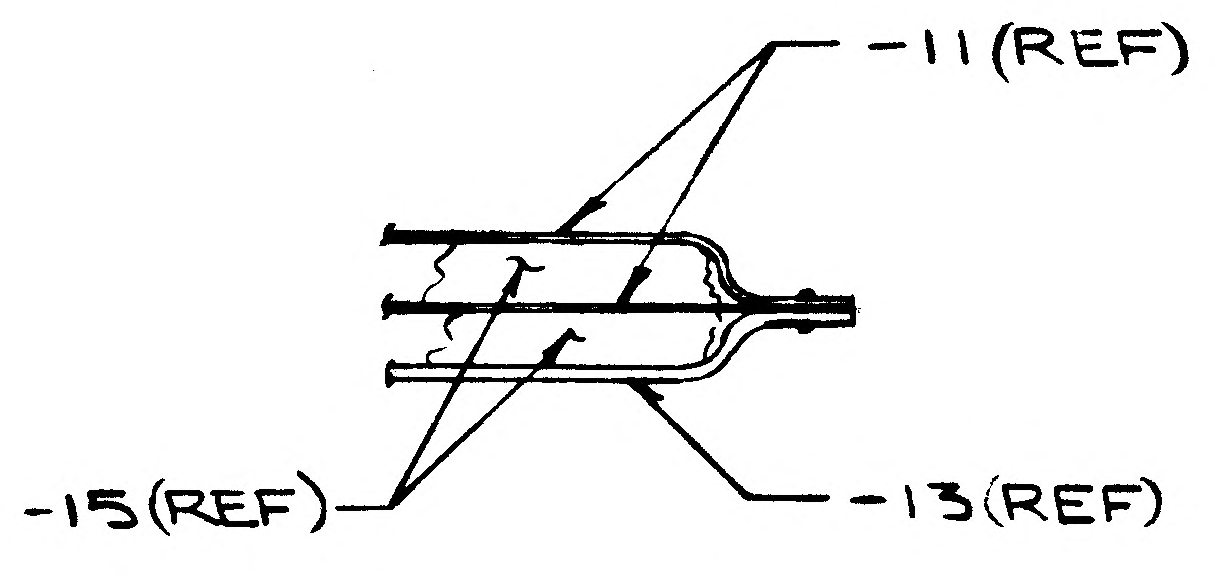
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ANNEALED BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE PER ASTM-B162.
3. FIBERFRAX PAPER .020 THICK TYPE 970AH, NO BINDER (UNRESTRAINED THICKNESS 1/32) MAY BE PURCHASED FROM CARBORUNDUM CO., NIAGARA FALLS, N.Y. (CODE IDENT NO. 10646)



$7\frac{1}{4}$(TYP) FOR-11 & -13
7(TYP) FOR-15
7(TYP) FOR-15
$7\frac{1}{4}$(TYP) FOR-11 & -13
-11
-13
-15
⊠
A
A
EXTERIOR SURFACE FS
⊠ ASSY
$\frac{1}{16}$ (TYP)
$\frac{1}{4}$R (TYP) FOR -15
$\frac{3}{8}$R(TYP) FOR-11 & -13

LDW280-18591-1 ASSY WELDED



-11(REF)
-15(REF)
-13(REF)

SECTION A-A
NO SCALE

01 NAS 1-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18591

SCALE FULL
SHEET 300

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING OR

DWG. NO. LEO 280 | EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586 ✓	A1	
-18590 ✓	A4	
-18591 ✓	A1	
-18592	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD3587 PKG55 PG 3-4 | CCA 1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM * *	VK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					WH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/2/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1382

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18591
EO NO. A2
CONTROL INFO NO. LM-29-1377

IN M/B ON -1, ADD N/A LDW280-66514 DVT(70) 1 REQ'D/MOD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

LCD2965 PKG2 CCA1235 ECPH053 (27)

REASON FOR EO: TO AGREE WITH DVT REQUIREMENTS ON N/A

DESCRIPTION OF EO: IN M/B ON-1 ADDED N/A LDW280-66514 DVT(70) 1 REQ'D/MOD

GAEC EO RELEASE: VK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT-(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	—

	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				VC	BM	VJB		
DATE 5/14/69	6/[illegible]/69			6-30-69	5-13-69	5-13-69	7/1/69	6-6-69

PRIORITY: C
DRAWING TITLE: SKIN ASSY WELDED DESCENT STAGE - BASE HEAT SHIELD
DRAWING NO.: LDW280-18591
EO NO.: A2

ISSUED BY LIAISON PL29 E STELLA x7930
SECTION VDI
GROUP NO. 335
PL 25

01

NAS 9-1100

LDW280-18592

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15 (45)	4 EA
LM		LM-14 (44)	4 EA
LM		LM-13 (43)	4 EA
LM		LM-12 (42)	4 EA
LM		LM-11 (41)	4 EA
LM		LM-10 (40)	4 EA
LM		LM-9 (39)	4 EA
LM		LM-8 (38)	4 EA
LM		LM-7 (37)	4 EA
LM		LM-6 (36)	4 EA
LM	LDW280-66663	LM-5 (35)	4 EA
PART NO. LDW280-18592-11, -13, -14, -15, -16		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -16

GRUMMAN REL INFO

PRIM NO. 207 VK(001) MP-16 7/19/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

"U" ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2965 PKG 1

OK

CONTRACT NO. NAS9-1100

DRAWN BY LUNDSTEN 6-29-68

LAYOUT BY HATFIELD 7-9-68

CHECKED BY 7-3-68

GR. LEADER 7-9-68

VEH DES INT 7/9/68

STRUCTURES 7/15/68

STRUCTURES FEB 7/16/68

WEIGHTS

RELIABILITY

PROJ ENGR J. Pusateri 7/16/68

REL GROUP 7/18/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE ~ REMOVABLE
BASE HEAT SHIELD ~ EDGE

SIZE B

CODE IDENT NO. 26512

LDW280-18592

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 7-12-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18592-16	E	STIFFENER	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL-4V	.030 ×5½×15⅝	CM, NOTE 2	NONE	
		-15	E					.030 ×5½×15⅝	CM, NOTE 2		
		-14	E					.030 ×5¾× 21	CM, NOTE 3		
		-13	E					.030 ×5¾× 21	CM, NOTE 3		
		LDW280-18592-11	E	STIFFENER	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL-4V	.030 ×5⅝×15¼	CM, NOTE 2	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM-MILL, TITANIUM	LSP 14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18592

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

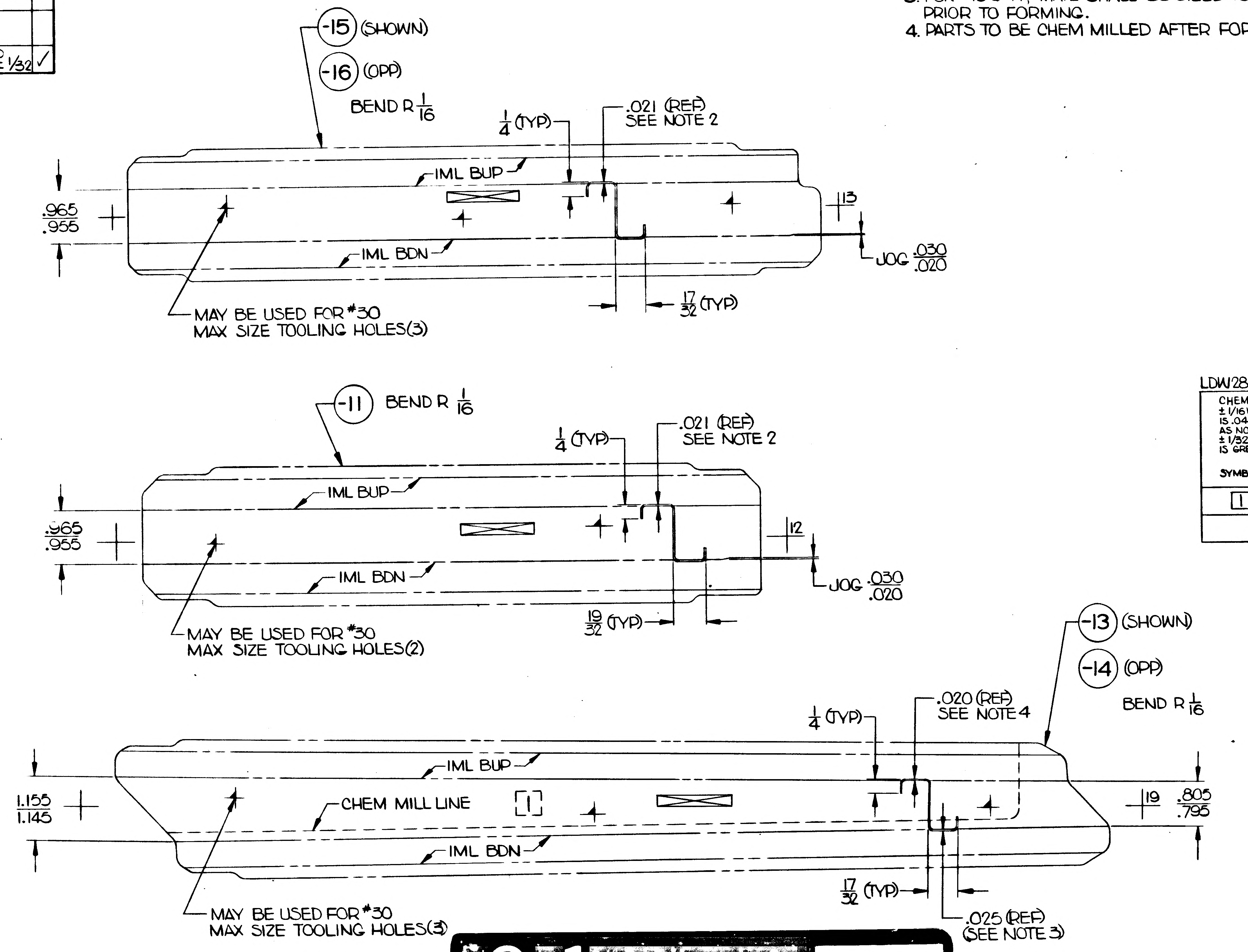
NAS 9-1100

LDW280-18592

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS, EXCEPT AS NOTED.
2. FOR -11, -15 & -16, MATL SHALL BE SIZED TO $.021^{+.003}_{-.000}$ PRIOR TO FORMING.
3. FOR -13 & -14, MATL SHALL BE SIZED TO $.025^{+.003}_{-.000}$ PRIOR TO FORMING.
4. PARTS TO BE CHEM MILLED AFTER FORMING.



(-15) (SHOWN)
(-16) (OPP)
BEND R 1/16
1/4 (TYP)
.021 (REF) SEE NOTE 2
IML BUP
IML BDN
.965
.955
.13
JOG .030 .020
17/32 (TYP)
MAY BE USED FOR #30 MAX SIZE TOOLING HOLES(3)
(-11) BEND R 1/16
1/4 (TYP)
.021 (REF) SEE NOTE 2
IML BUP
IML BDN
.965
.955
.12
JOG .030 .020
19/32 (TYP)
MAY BE USED FOR #30 MAX SIZE TOOLING HOLES(2)
(-13) (SHOWN)
(-14) (OPP)
BEND R 1/16
1/4 (TYP)
.020 (REF) SEE NOTE 4
IML BUP
CHEM MILL LINE
1
IML BDN
1.155
1.145
.19
.805
.795
17/32 (TYP)
.025 (REF) (SEE NOTE 3)
MAY BE USED FOR #30 MAX SIZE TOOLING HOLES(3)

30
15

LDW280-18592-13,-14

CHEM-MILL LINE TOLERANCE: ± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	$.020^{+.003}_{-.000}$	.005 REF

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18592	
SCALE FULL		SHEET 3.00	

ENG 73.3 REV 5-67

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18592	EO NO.	A1
CONTROL INFO NO.	LDW-280-B4908		

ADD REQMTS. ON N/A LDW280-66663 EFF. LFM 200, LM-5 (35)
FOR -11, -13, -14, -15 & -16 (4) EA. REQD/MOD.

ADD REQMTS. ON N/A LDW280-66663 EFF. DVT 70
FOR -11, -13, -14, -15 & -16 (1) EA. REQD.

LFM

ADD NOTE * "THIS DWG AFFECTED BY LFM 200 WHICH MAY BE USED ON LM-5 (35)"

* USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2965 PKG. 1 (CCA 1235)

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO: ADDED ON N/A LDW280-66663 EFF. LFM 200, LM-5 (35) -11, -13, -14 -15 & -16; ADDED ON N/A LDW280-66663 EFF. DVT 70, -11, -13 -14 -15 & -16 ADDED NOTE*

GAEC EO RELEASE: JK 8/9/68

MODEL	~~PROCURING ACTIVITY~~ NO. EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM 5 (35)	
LM		DVT 70	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQD.		APPROVED BY		W					Bauman
				DATE	7/27/68	7/29/68		7/26/68	7/29/68	7/30/68	8-4-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER DESCENT STAGE - REMOVABLE BASE HEAT SHIELD - EDGE	LDW 280-18592	A1

08 02 68
ISSUED BY R. STILWELL / P. THORJUSEN X-1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1176
CONTROL INFO NO. LDW 280B5631

CHG. LTR.	DRAWING NO. *	RESTRICT FOR USE ON	WAS USED ON
✓ A6	LDW280-18367 -21	LM-6(36) THRU LM-15(45), DVT(70) LFM200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).
✓ A5	LDW280-18272 -13, -15, -17, & -19	LM-2(32) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200 LM-5(35)	LM-2(32) THRU LM-15(45), LFM200 LM-5(35).
✓ A2	LDW280-18590-11, -12 -13, -14, -20, -19, -21, -22	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), DVT(70) LFM200 LM-5(35).
	LDW280-18590 -15, -17 -23	LM-6(36) THRU LM-15(45), LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45), & LFM 200 LM-5(35)
✓ A2	LDW280-18592-11, -13 -14, -15, -16	LM-6(36) THRU LM-15(45), DVT(70) LFM 200 LM-5(35).	LM-5(35) THRU LM-15(45) LFM200 LM-5(35) DVT(70)

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

GAEC EO RELEASE

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/21/68			10/19/68	11/22/68		10/22/68	10-23-68
	YDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1176

CDR 10/25/68
ISSUED BY JOE LUCCHESI PR/G. ZEMAN x86046 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B 7440

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586 ✓	A1	
-18590 ✓	A4	
-18591 ✓	A1	
-18592 ✓	A3	
LDW280 -18593	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: 4/24/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/?/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1382

052869
ISSUED BY: MEVORAH/THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 | EO NO. 1558
CONTROL INFO NO. LDW280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
593		B2
594		A3
595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQ'MTS

GAEC EO RELEASE: (R) SWB 8-13-69; JK 8/15/9; Bauman 8-15-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PJH				M		
DATE	7-29-69			7/29/69	8-2-69		8/2/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18593 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DESIGN VERIFICATION TEST (70)	1
LM	LDW280-66663	LM-15(45)	4
↑	↑	LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
↓		LM-7(37)	4
LM	↓	LM-6(36)	4
LFM 200	LDW280-66663	LM-5(35)	4

PART NO. LDW280-18593-13 | GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: B

LAST DASH NO. USED: -13

GRUMMAN REL INFO C A

PRIM NO.	K(001)		
215	MP-16	A 9/19/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2965

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A Bishop 6-25-68	MATERIALS	R A Hoffman 7/29/68
LAYOUT BY	P Georgopoulos	THERMO	T Nelson 7/29/68
CHECKED BY	WCG 7/18/68		
GR LEADER	Ferguson 7/26/68		
VEH DES INT	Wilson 7/29/68		
STRUCTURES		PROJ ENGR	8/1
STRUCTURES	N Markeloff 7/29/68	REL GROUP	8/3/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~REMOVEABLE BASE
HEAT SHIELD~INBOARD CLOSURE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18593	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR-7-12-68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~CONT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		LFM 200 CCA1235		✓		LCD-2965 CDR 092068 Ⓐ	CREATED -13, REMOVED -11. ADDED NOTES 2&3 ADDED SHEET 1.10. P.Y. D. Faul JC	LM-5 THRU LM-15, DVT		-11	LAMBERT 8-27-68	9/17/68	

CHG APPROVED												
LTR	GROUP LDR	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	MATERIALS	THERMO				
A	9/13/68	9/16/68		WJA 9/16/68							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B CODE IDENT NO. 26512 LDW280-18593 A Ⓐ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18593-13	E	ANGLE	TITANIUM SH	MIL-T-9046 TYPE III COMPC ANL	6AL-4V	.030×9×37(SEE NOTE 2)	CM	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM MILL	LSP14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18593	A

SCALE NONE

SHEET 2.00

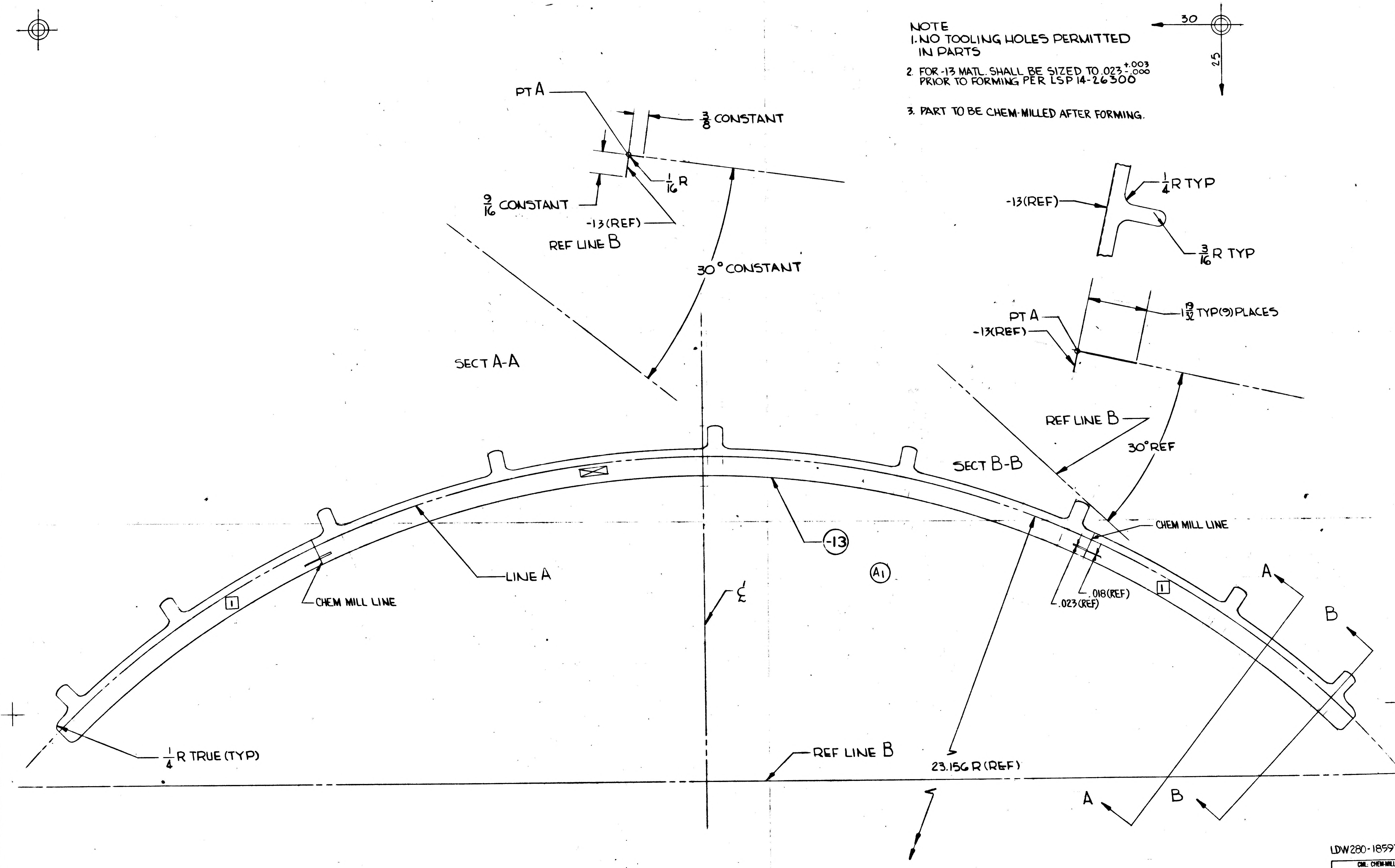
Ⓐ

ENG 77.2 7-65

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FOR -13 MATL. SHALL BE SIZED TO .023 $^{+.003}_{-.000}$ PRIOR TO FORMING PER LSP 14-26300
3. PART TO BE CHEM-MILLED AFTER FORMING.



30
25
PT A
3/8 CONSTANT
1/16 R
9/16 CONSTANT
-13 (REF)
REF LINE B
30° CONSTANT
SECT A-A
-13 (REF)
1/4 R TYP
3/16 R TYP
PT A
-13(REF)
1 19/32 TYP(9) PLACES
REF LINE B
30° REF
SECT B-B
CHEM MILL LINE
LINE A
-13
A1
1
CHEM MILL LINE
℄
.018 (REF)
.023 (REF)
A
B
1/4 R TRUE (TYP)
REF LINE B
23.156 R (REF)
A
B
35

LDW280-18593-13

CML: CHEM-MILL LINE TOLERANCE EXCEPT AS NOTED ETCH DEPTH .040 OR LESS: ± 1/16 ETCH DEPTH OVER .040: ± 1/32		
SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.018 $^{+.003}_{-.000}$	.005(REF)
☐		
☐		

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

TRAM O.K. T.S. 6-25-68

NAS 1-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE F	CODE IDENT NO. 26512	LDW280-18593	A
MODEL OR END ITEM	SCALE FULL		SHEET [illegible]

FOR PHOTO REPRODUCTION

LDW280-18593 A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1382
CONTROL INFO NO. LDW280B ~~7440~~

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18560 ✓	A3	SEE DWG
-18561 ✓	A3	
-18562 ✓	A5	
-18563 ✓	A3	
-18585 ✓	B1	
-18586 ✓	A1	
-18590 ✓	A4	
-18591 ✓	A1	
-18592 ✓	A3	
LDW280 -18593 ✓	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG55 PG 3-4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: JK 4/22/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1382

052869
ISSUED BY MEVORAH/THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1558
CONTROL INFO NO. LDW 280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
594		A3
595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: 8-13-69; JK 8/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PJF				M		Bauman	
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-15-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18594

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT(70)	1
LM	LDW280-66663	LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
LM			
LFM 200	LDW280-66663	LM-5(35)	4

PART NO. LDW280-18594-11

WORK PACKAGE FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED C

LAST DASH NO. USED -11

GRUMMAN REL INFO C

PRIM NO. 207 K(001

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2965.CCA1235

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	R.GIORDANO 7-27-68	RELIABILITY	
LAYOUT BY	J. HATFIELD 48-7-68		
CHECKED BY	B. MAGGIAC 8-2-68		
GR LEADER	8-13-68		
VEH DES INT	8/14/68		
STRUCT		PROJ ENGR	J. Lugaten 8/14/68
STRUCT	8/14/68	REL GROUP	8-16-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-REMOVABLE BASE HEAT SHIELD
PANEL-INBOARD SUPPORT RING

SIZE B

CODE IDENT NO. 26512

LDW280-18594

SCALE NONE

SHEET 1.00 OF 3

CDR 080968

NG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18594-11	E	ANGLE	TITANIUM SH	MIL-T9046 TYPE III COMP-CANL	6AL-4V	.050 x 5 x 45	CM	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM MILL	LSP-14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18594

SCALE NONE

SHEET 2.00

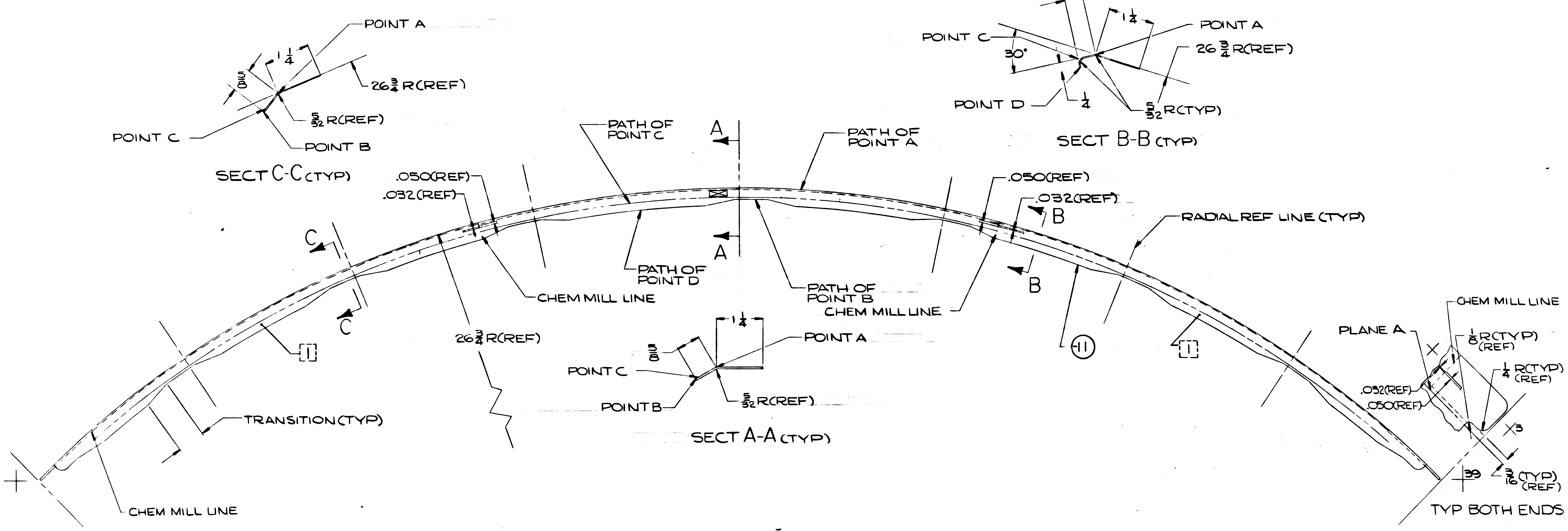
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



30
30
POINT A
1 1/4
5/8
26 3/4 R(REF)
5/32 R(REF)
POINT C
POINT B
SECT C-C (TYP)
1/2
1 1/4
POINT C
POINT A
30°
26 3/4 R(REF)
POINT D
1/4
5/32 R(TYP)
SECT B-B (TYP)
PATH OF POINT C
A
A
PATH OF POINT A
.050(REF)
.032(REF)
.050(REF)
.032(REF)
B
B
RADIAL REF LINE (TYP)
C
C
PATH OF POINT D
PATH OF POINT B
CHEM MILL LINE
CHEM MILL LINE
26 3/4 R(REF)
1
1 1/4
5/8
POINT A
POINT C
POINT B
5/32 R(REF)
SECT A-A (TYP)
-11
1
TRANSITION (TYP)
CHEM MILL LINE
CHEM MILL LINE
PLANE A
1/8 R(TYP) (REF)
1/4 R(TYP) (REF)
.032(REF)
.050(REF)
X3
.39
3/16 (TYP) (REF)
TYP BOTH ENDS

LDW280-18594-11

CML: CHEM-MILL LINE TOLERANCE EXCEPT AS NOTED ETCH DEPTH .040 OR LESS: ± 1/16 ETCH DEPTH OVER .040: ± 1/32		
SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.032^{+.003}_{-.000}$	.018(REF)

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18594
SCALE FULL		SHEET 3.00

LDW280-18594

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18594
EO NO. A1
CONTROL INFO NO. LM-3-6662

ON-11 REVISE CHEM-MILL BLOCK:

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.035 {}^{+.003}_{-.003}$	.015 (REF)

WAS:

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	$.032 {}^{+.003}_{-.000}$	.018 (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965 CCA 1235 PKG110	③

REASON FOR EO

TO ELIMINATE DIFFICULTY IN MAINTAINING TOLERANCE

DESCRIPTION OF EO

ON-11:
REVISED CHEM-MILL CALLOUT: $.035 {}^{+.003}_{-.003}$ WAS: $.032 {}^{+.003}_{-.000}$

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQ'D
REVISE DWG	RECORD EO	RE WORK	SCRAP

APPROVED BY					J.K.	BM		Bauman
DATE	1/21/69			1-21-69	12/19/68	12-19-68	1/22/69	1-2-69
12-19-68	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE DESCENT STAGE REMOVABLE BASE HEAT SHIELD PANEL-INBD SUPPORT	LDW280-18594	A1

ISSUED BY VPE-03/A FERRERI ×2151

SECTION VD1

GROUP NO. 280 PL 25

01

NAS 9-1100

DWG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18594	A2	SEE DWG
-18595	A3	
-18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM — *	® JK 5/6/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/8/69			4-2-69	4/8/69		4/9/69	5/6/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1441

052269
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1558
CONTROL INFO NO. LDW 280B 8121		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]) ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-1	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
✓ 594		A3
595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	SWB 8-13-69 JK 8/13/69

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.						PJT				M			Bauman
								DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-15-69
LM		LTA-11 ([redacted])		✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~ASST~~
		(23)		PRIORITY		DRAWING TITLE						DRAWING NO.			EO NO.	
				C		SEE DRAWINGS						LEO 280			1558	

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18595

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DESIGN VERIFICATION TEST (70)	2 EA
		LM-15 (45)	8 EA
		LM-14 (44)	8 EA
		LM-13 (43)	8 EA
		LM-12 (42)	8 EA
		LM-11 (41)	8 EA
		LM-10 (40)	8 EA
		LM-9 (39)	8 EA
		LM-8 (38)	8 EA
		LM-7 (37)	8 EA
LM		LM-6 (36)	8 EA
LFM 200	LDW280-66663	LM-5 (35)	8 EA
PART NO. LDW280-18595-14		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DESIGN VERIFICATION TEST (70)	1 EA
		LM-15 (45)	4 EA
		LM-14 (44)	4 EA
		LM-13 (43)	4 EA
		LM-12 (42)	4 EA
		LM-11 (41)	4 EA
		LM-10 (40)	4 EA
		LM-9 (39)	4 EA
		LM-8 (38)	4 EA
		LM-7 (37)	4 EA
LM		LM-6 (36)	4 EA
LFM 200	LDW280-66663	LM-5 (35)	4 EA
PART NO. LDW280-18595-11-13 & -15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO
LAST DASH NO. USED	-15	PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965, CCA 1235

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 7-27-68	RELIABILITY	
LAYOUT BY	J. HATFIELD 8-7-68		
CHECKED BY	B. MAGGIAC. 8/1/68		
GR LEADER	Thorjussen 8-13-68		
VEH DES INT	8/13/68		
STRUCTURES		PROJ ENGR	Lusatere 8/14/68
STRUCTURES	8/14/68	REL GROUP	Marsh 8-15-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE REMOVEABLE BASE
HEAT SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18595
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 080968

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-18595-15	E	STIFFENER	TITANIUM SH	MIL-T9046 TYPE III COMP-C ANL	6AL-4V	.050 × 4 × 8	CM	NONE	
							-14	↕	↕	↕		↕	.030 × 6 × 12	CM	↕	
							-13						.030 × 6 × 12	CM		
							LDW280-18595-11	E	STIFFENER	TITANIUM SH		6AL-4V	.030 × 7 × 21	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM-MILLING	LSP 14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18595
SCALE NONE		SHEET 2.00

ENG 77.2 7-65

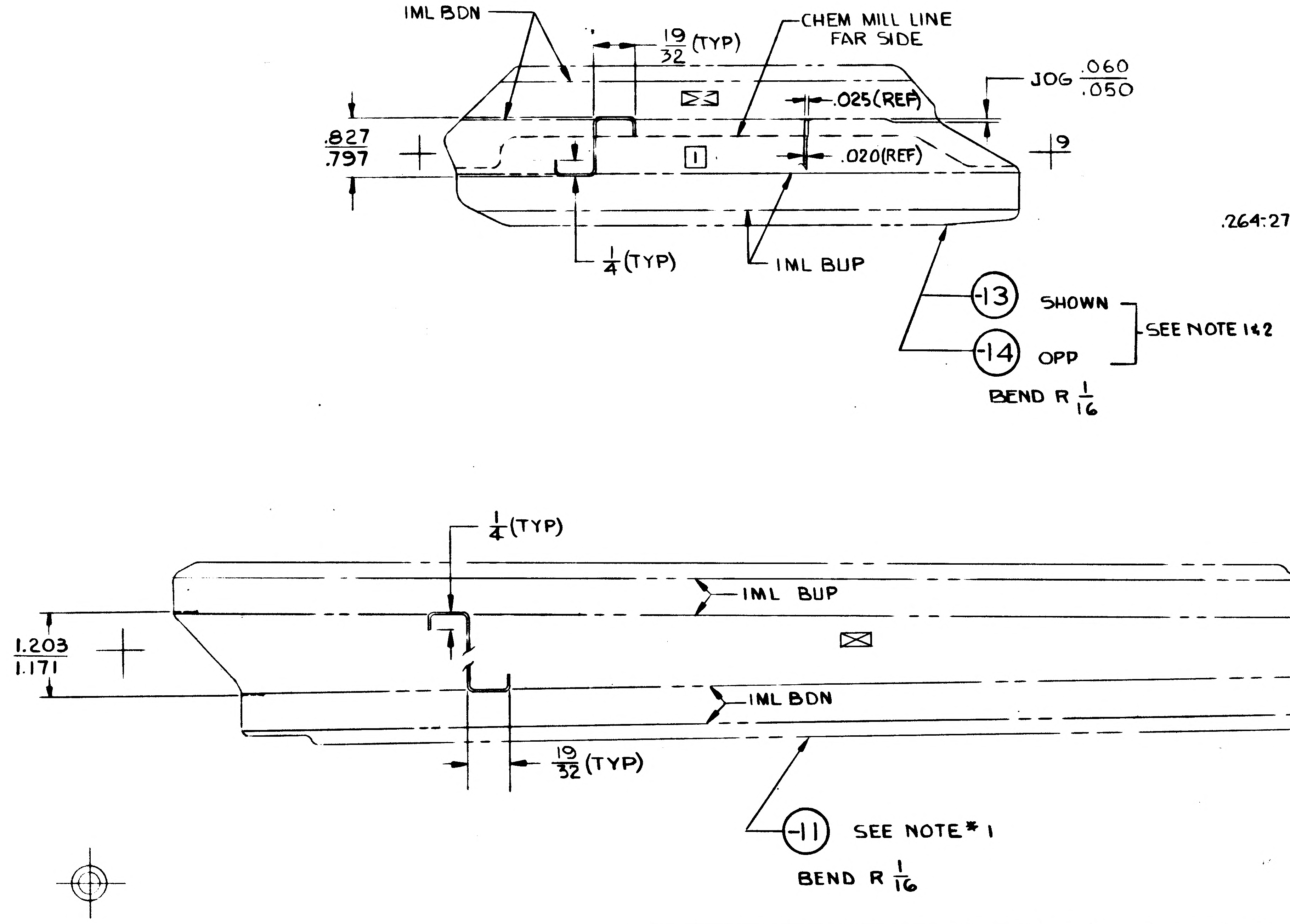
01

NAS 9-1100

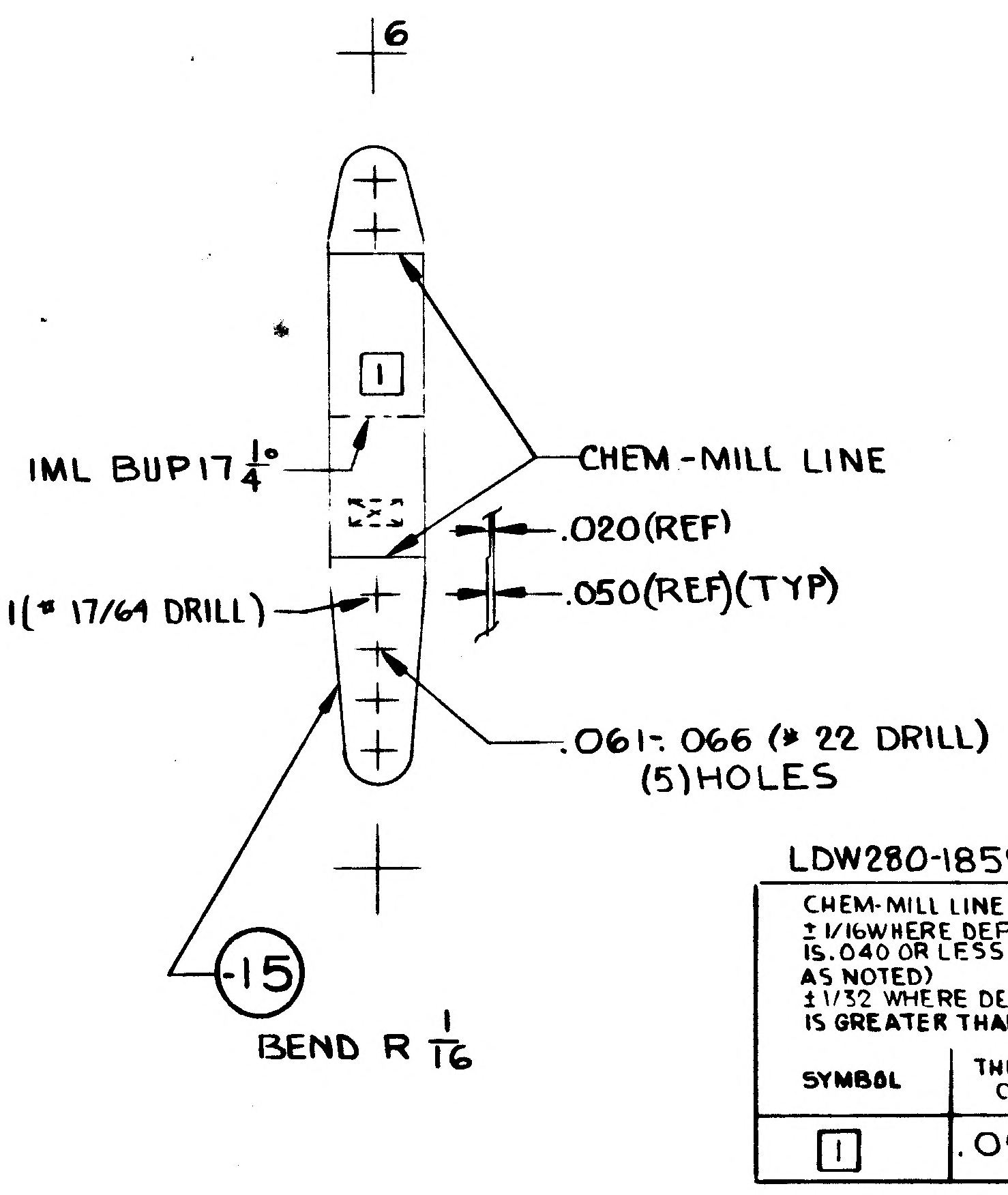
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES

1. FOR -11-13&-14 FINAL SH STOCK SIZE TO BE .025 $^{+.003}_{-.000}$
2. ON-13&-14 CHEM MILL TO .020 AFTER FORMING
3. NO TOOLING HOLES PERMITTED IN PARTS



IML BDN
19/32 (TYP)
CHEM MILL LINE FAR SIDE
JOG .060/.050
.025(REF)
.020(REF)
.827/.797
19
1/4 (TYP)
IML BUP
-13 SHOWN
-14 OPP
SEE NOTE 1&2
BEND R 1/16
1/4 (TYP)
IML BUP
1.203/1.171
19
.858/.828
IML BDN
19/32 (TYP)
-11 SEE NOTE * 1
BEND R 1/16



6
IML BUP 17 1/4°
CHEM-MILL LINE
.020(REF)
.050(REF)(TYP)
.264-.271(# 17/64 DRILL)
.061-.066 (# 22 DRILL) (5)HOLES
-15
BEND R 1/16

LDW280-18595-15

CHEM-MILL LINE TOLERANCE: ± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.020 $^{+.003}_{-.000}$	.030(REF)

LDW280-18595 -13&-14

CHEM-MILL LINE TOLERANCE: ± 1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED) ± 1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040		
SYMBOL	THICKNESS AFTER CHEM-MILLING	* DEPTH OF CUT
1	.020 $^{+.003}_{-.000}$	.005(REF)

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18595

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

K2

WP

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18595
EO NO. A1
CONTROL INFO NO. LM29-1290

ON-15 : .061-.066 (1/16 DRILL) (5 HOLES)
WAS .061-.066 (#22 DRILL) (5 HOLES)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 CCA 1235 (PKG 110)

(29)

REASON FOR EO: TO AGREE WITH DECIMAL EQUIVALENT. DRAWING ERROR.

DESCRIPTION OF EO: ON-15: REVISED DRILL CALLOUT TO 1/16 WAS #22

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	Jaf			—	[illegible]	W.F.	Jaf	[illegible]
DATE	11/1/68			—	10/14/68	10/11/68	11/1/68	10-10-68
	VDI							

PRIORITY: E

DRAWING TITLE: STIFFENER D.S. REMOVEABLE BASE HEAT SHIELD.

DRAWING NO. LDW280-18595

EO NO. A1

ISSUED BY LIAISON W. FRANK (7930) SECTION VDI GROUP NO. 335 PL 25

01

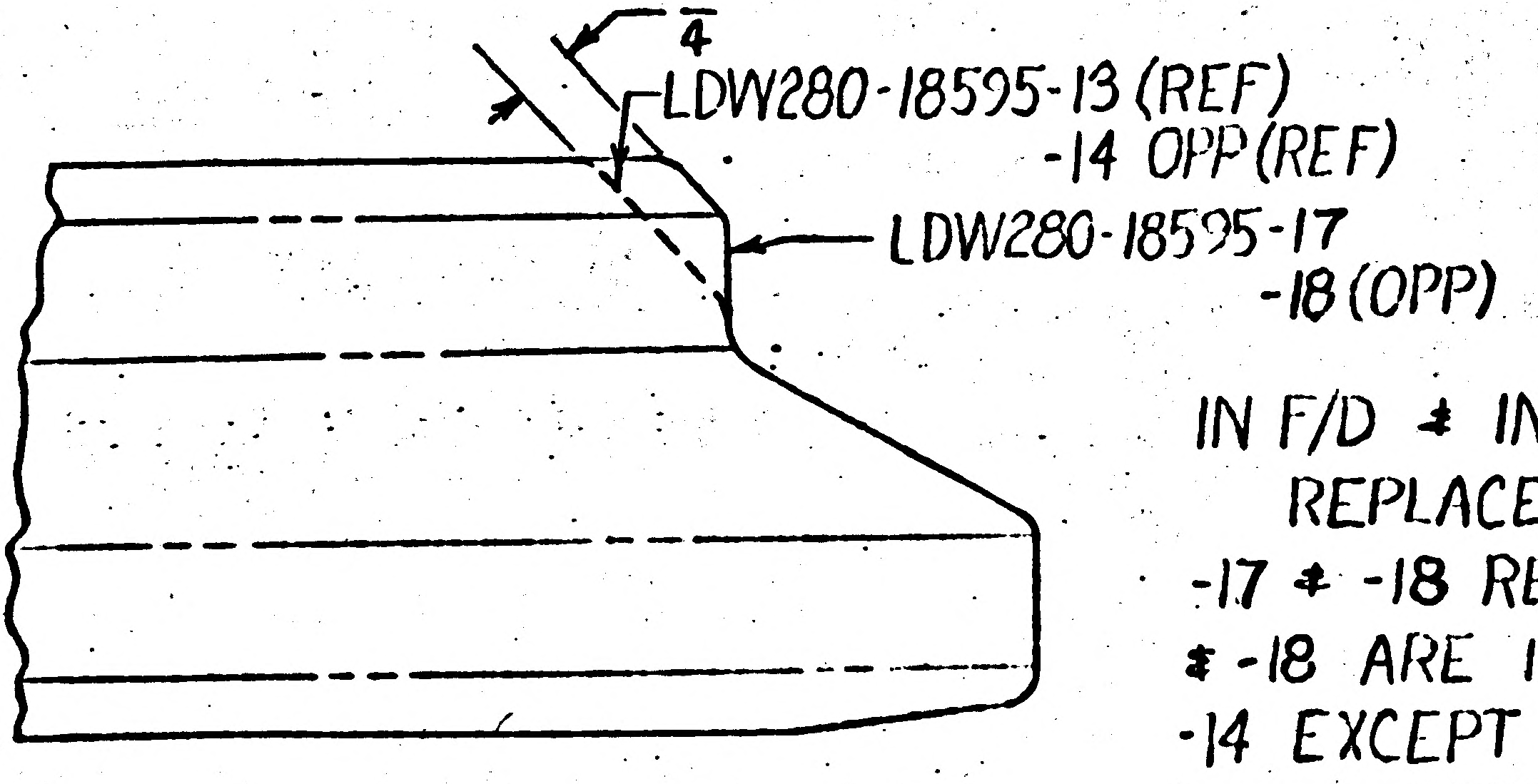
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. NOTED
EO NO. ~
CONTROL INFO NO. LM-29-1304

LDW 280 18595 A2



IN F/D & IN B/M
REPLACE -13 & -14 WITH
-17 & -18 RESPECTIVELY. -17
& -18 ARE IDENTICAL TO -13 &
-14 EXCEPT AS SHOWN.

DWG NO.	EO NO.
LDW280-18595	A2

NHA DESCRIPTION	NHA NO.	EO NO.
ON -9 ASSY LDW280-18595-17 WAS -13 LDW280-18595-18 WAS -14	LDW280-66663	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 CCA 1235

REASON FOR EO: TO PROVIDE ADEQUATE EDGE DISTANCE FOR HOLES.

DESCRIPTION OF EO: IN F/D & B/M -17 & -18 REPLACED -13 & -14 RESPECTIVELY.

GAEC EO RELEASE: HF

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	
LM		LM-5(35)	
	THRU	LM 15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13 -14

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	—			
DATE	11/20/68			—	—	11.7.68	11/20/68	11-7-68
	7 Nov 68							

PRIORITY: C

DRAWING TITLE: STIFFENER D/S REMOVEABLE BASE HEAT SHIELD

DRAWING NO. NOTED

EO NO. ~

ISSUED BY LIAISON J. STECEWYCZ X7930 SECTION STRUCTURAL DES. GROUP NO. 335 PL 36

008

DWG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18594	A2	SEE DWG
-18595	A3	↑
-18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	↓
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: Ⓡ JK 5/6/69

EFFECTIVITY:

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				RSt	W/H			
DATE	4/1/69			4-2-69	4/8/69	4/9/69		5/6/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1441

052269
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 3 · REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1558
CONTROL INFO NO. LDW 280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1[illegible]	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
✓ 594		A3
✓ 595		A4
598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/9; Bauman 8-15-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS								
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	PJt			M		
✓		NOT REQ'D		DATE	7-29-69		7/29/69	8-2-69		8/2/69
					VDI	SUPPORT / RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PRO. ENGRG

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18597

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11 (23)	1
↑	↑	LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
↓	↓	LM-11 (41)	1
LM	LDW280-60522	LM-10 (40)	1

PART NO. LDW280-18597-17

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23530	LTA-11 (23)	1 EA
↑	↑	LTA-3DR/1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-23530	LM-10 (40)	1 EA

PART NO. LDW280-18597-13 & -15

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54525	LTA-11 (23)	1
↑	↑	LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
↓	↓	LM-11 (41)	1
LM	LDW280-54525	LM-10 (40)	1

PART NO. LDW280-18597-11

GAEC SCH NO. 51-6

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED	
LAST DASH NO. USED	-17

GRUMMAN REL INFO SALB

PRIM NO.	JK(001)		
207	ME-16	10/17/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD3994 PKG 61

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. BIANCHINO		
LAYOUT BY	M. SHAPIRO		
CHECKED BY	10-8-67		
GP LEADER	Thorjusen 10-15-69		
VEH DESINT	10-15-69		
STRUCTURE G.P.	10/16/69	PROJ ENGR	10/16/69
STRUCTURE W/H	10/16/69	REL GROUP	10/16/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ C.H. BHD ~ PAYLOAD
SUPPORT TRUSS

SIZE	CODE IDENT NO.	
B	26512	LDW280-18597

SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-17-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18597-17	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040X 2X 4	NONE	88	
								LDW280-18597-15	E	ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.090 × 2 × 12	T6	88	
								LDW280-18597-13	E	ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.045X 2 × 12	T6	88	
								LDW280-18597-11	E	ANGLE	AL. ALLOY SH	QQ-A-250/12	7075	.040X2 X13	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18597
SCALE	NONE	SHEET 2.00

ENG 77.2 7-65

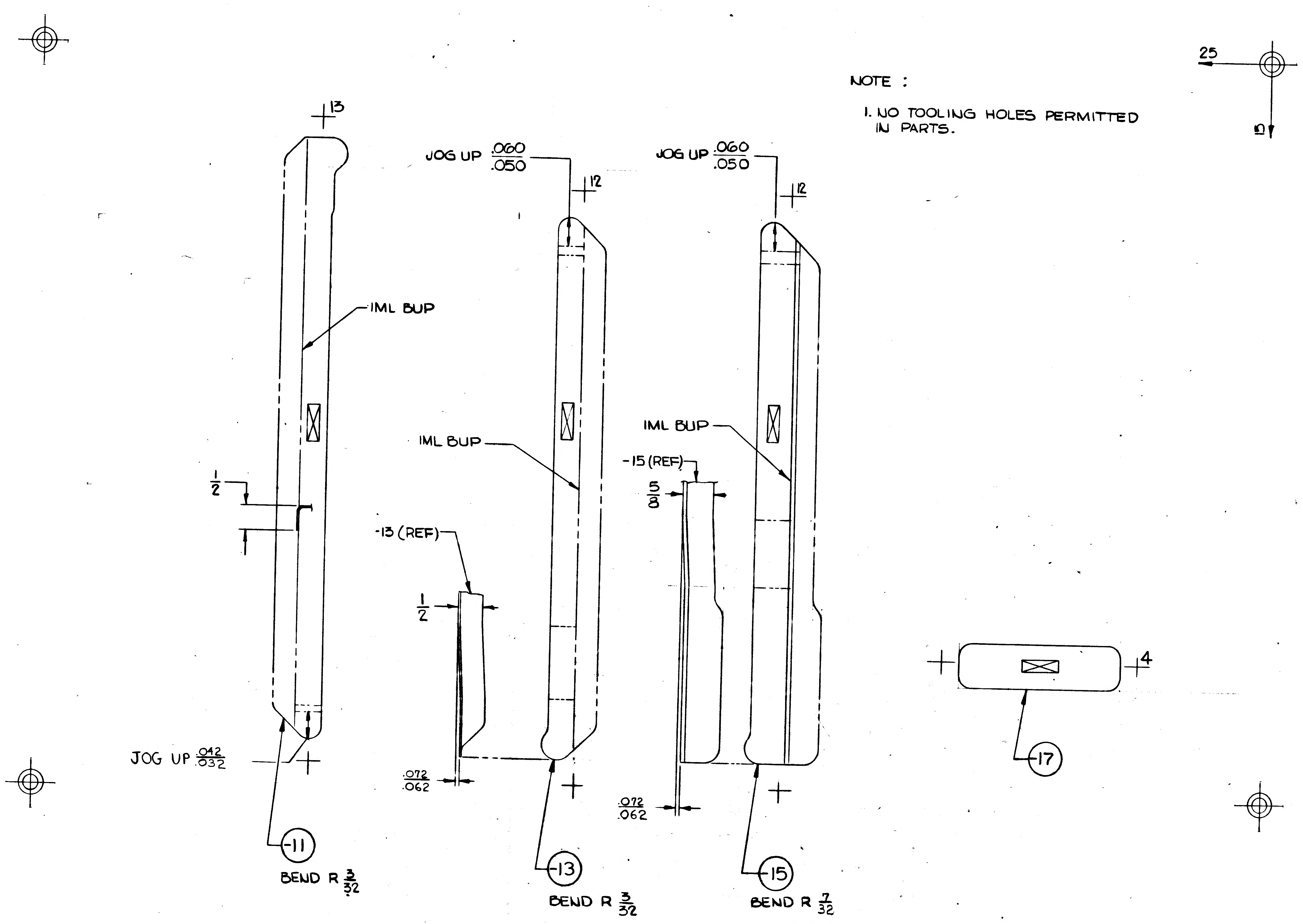
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE :

1. NO TOOLING HOLES PERMITTED IN PARTS.


13
IML BUP
1/2
JOG UP .042/.032
-11
BEND R 3/32
JOG UP .060/.050
12
IML BUP
-13 (REF)
1/2
.072/.062
-13
BEND R 3/32
JOG UP .060/.050
12
IML BUP
-15 (REF)
5/8
.072/.062
-15
BEND R 7/32
4
-17
25
10

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18597
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

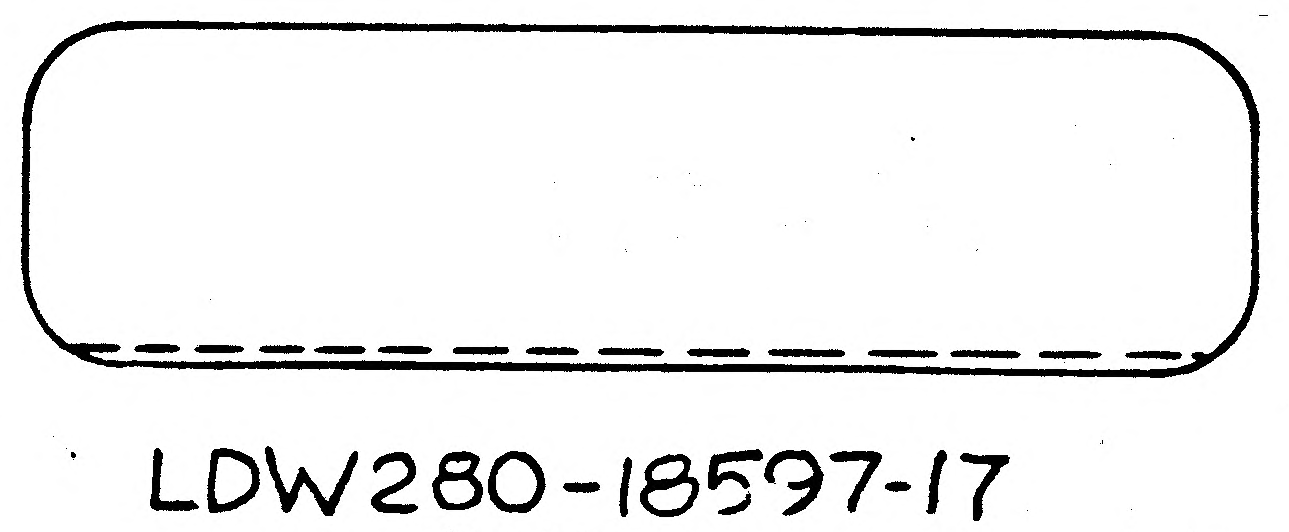
NAS 9-1100

ENG 32.1 REV 3-65

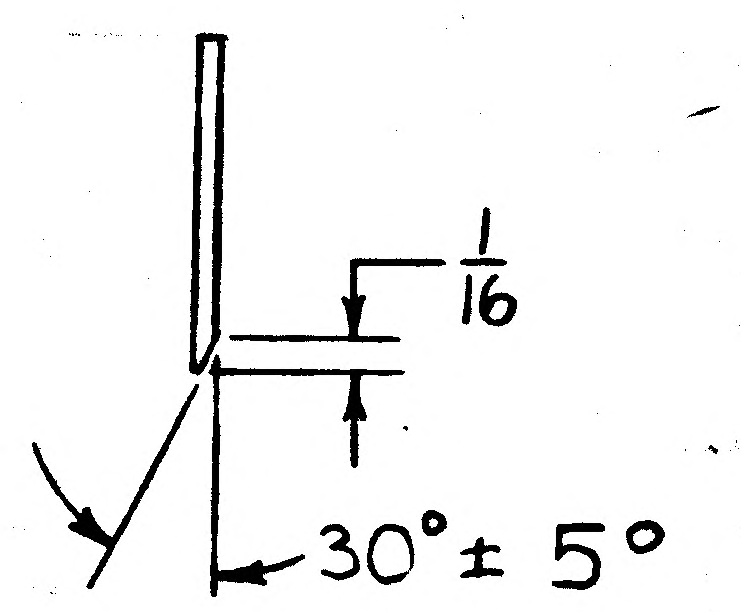
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18597	EO NO. A1
CONTROL INFO NO. LM-2-6115	

IN F/D FOR -17
ADD CHAMFER AS SHOWN.



LDW280-18597-17
(REF)



REWORK NOTE: FOR BARE METAL FINISH
NO 76.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG 61

REASON FOR EO: TO AVOID INTRF UPON ASSY.

DESCRIPTION OF EO: IN F/D FOR -17 ADDED 1/16 × 30° CHAMFER.

GAEC EO RELEASE

MODEL	EFFECTIVITY	GAEC UNIT NO.	
LM		LTA-3 DR/1(460)	
LM	LM-11 (41)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		-17		DATE	3-30-70			3/30/70	3/19/70	3/19/70	3/30/70	3/23/70
REVISE DWG	RECORD EO	REWORK	SCRAP	19 MAR 70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
									KC	KC		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S ~ L.H.B. PAYLOAD SPRT TRUSS	LDW280-18597	A1

ISSUED BY LIAISON J. STECEWYCZ X3605 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

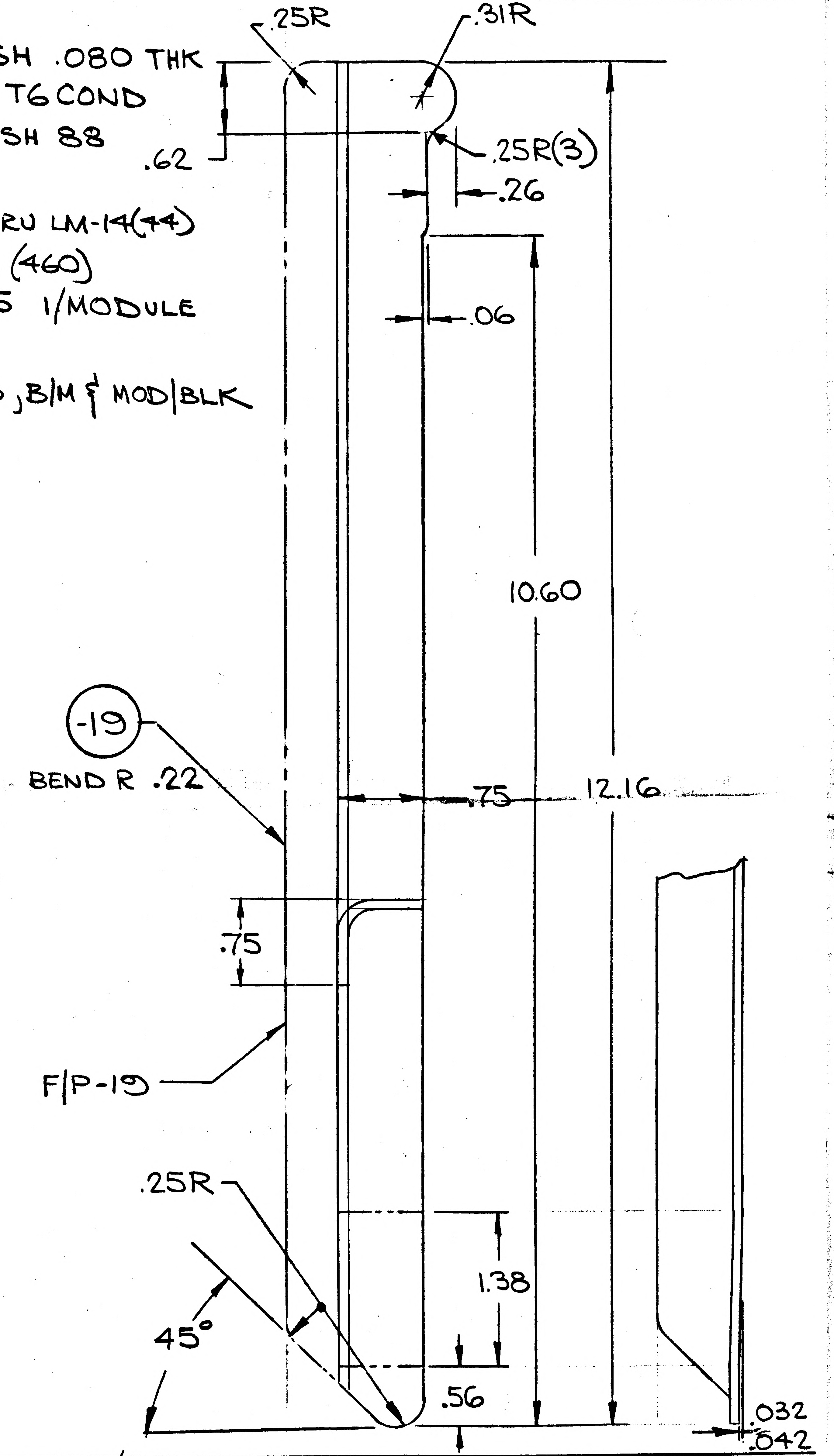
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18597
EO NO. A2
CONTROL INFO NO. LDW280C0334
TO BE LOFTED

ADD -19 ANGLE
MATL 7075 AL ALLOY SH .080 THK
QQ-A-250/12 HT TO T6 COND
PER MIL-H-6088, FINISH 88
PER LSP14-9030

-19 EFF LM-10(40) THRU LM-14(44)
LTA-11(23), LTA-3DR/1(460)
N/A LDW280-54525 1/MODULE
I&T-E

REMOVE -11 FROM F/D, B/M & MOD/BLK



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3994 PKG 61

REASON FOR EO: MWC STRENGTH REQD FOR SUPPORT OF LRV SPT TRUSS STRUCT

DESCRIPTION OF EO: ADDED -19, REMOVED -11

GAEC EO RELEASE: 4-14-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44), LTA-11(23)	
		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP -11

APPROVED BY								
DATE	4/14/70			4/13/70	4/14/70		4-14-70	4/14/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ANGLE D/S ~ LH BHD ~ PAYLOAD SUPPORT TRUSS
DRAWING NO. LDW280-18597
EO NO. A2

CDR 4/14/70
ISSUED BY G. BARNES / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18598

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT 70	4 EA
		LM-15(45)	4 EA
		LM-14(44)	4 EA
		LM-13(43)	4 EA
		LM-12(42)	4 EA
		LM-11(41)	4 EA
		LM-10(40)	4 EA
		LM-9(39)	4 EA
		LM-8(38)	4 EA
		LM-7(37)	4 EA
LM		LM-6(36)	4 EA
LFM 200	LDW280-66663	LM-5(35)	4 EA

PART NO. LDW280-18598-11,-12&-13		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	JK(00)	
LAST DASH NO. USED	-13	207	MP-16 7/16/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965	

OK

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 6/26/68	RELIABILITY	
LAYOUT BY	P. GEORGOPOULOS PG		
CHECKED BY	R KACHALA 6/27/68		
GR LEADER	Thoms 7-8-68		
VEH DES INT	J Cuatero 7/9/68		
STRUCT	7/15/68	PROJ ENGR	J. Cuatero 7/15/68
STRUCT	for FEB 7/15/68	REL GROUP	7/15/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - REMOVEABLE HEAT SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18598
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 7-12-68

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18598-13	E	CHANNEL	TITANIUM SH	MIL-T-9046	6AL-4V	.040 X 3 X 26	CM	NONE	
						TYPE III					
		-12				COMP C		.030 X 3 X 35	NOTE 2		
		LDW280-18598-11	E	CHANNEL	TITANIUM SH	ANL	6AL-4V	.030 X 3 X 35	CM	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM MILLING	LSP14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18598

SCALE NONE

SHEET 2.00

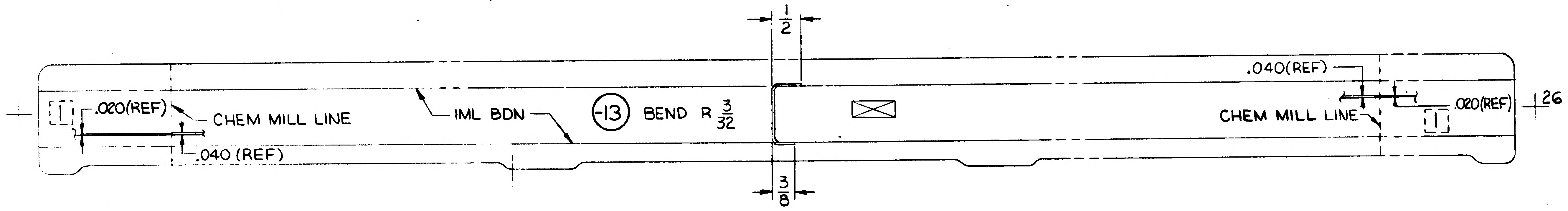
ENG 77.2 7-65

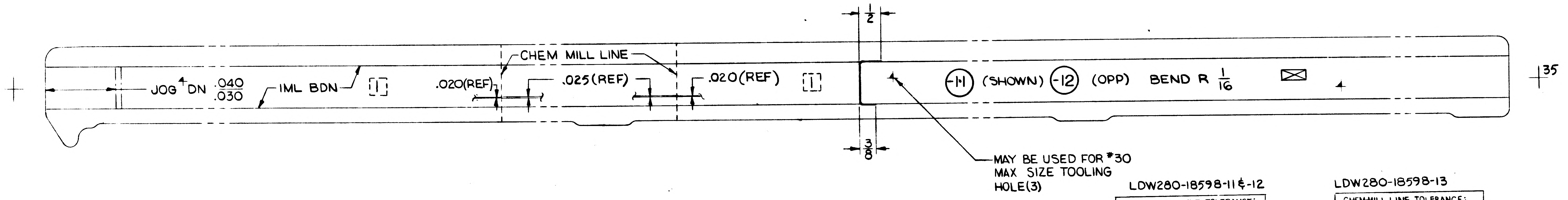
01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.
2. CHEM MILL -11 & -12 TO .025 ±.002 THICKNESS PRIOR TO FORMING.
3. UPON INITIAL RELEASE OF THIS DWG, TOOLING FOR LDW280-18598-11 & -12 IS SIMILAR TO LDW280-17557-13 & -14 RESPECTIVELY.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓




1/2
CHEM MILL LINE
JOG DN .040 .030
IML BDN
.020(REF)
.025(REF)
.020(REF)
-11 (SHOWN) -12 (OPP) BEND R 1/16
35
3/8
MAY BE USED FOR #30 MAX SIZE TOOLING HOLE(3)

LDW280-18598-11 & -12

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	# DEPTH OF CUT
1	.020 +.003 -.000	.005(REF)

LDW280-18598-13

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040.

SYMBOL	THICKNESS AFTER CHEM-MILLING	# DEPTH OF CUT
1	.020 +.003 -.000	.020(REF)

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
LM	SIZE F · CODE IDENT NO. 26512 · LDW280-18598
MODEL OR END ITEM	SCALE FULL · SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18598
EO NO. A1
CONTROL INFO NO. LDW-280-B4860

IN M/B REVISE QTY REQD/MODULE FOR -11, -12 & -13 NOW 1EA
WAS 4EA

EFF DVT 70

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2965 PKG1 CCA1235 (5)

REASON FOR EO: N/A REQMTS FOR -11, -12 & -13 INCORRECT ON ORIGINAL RELEASE

DESCRIPTION OF EO: REVISED QTY REQUIRED FOR -11, -12, & -13 FOR DVT70 EFF ONLY. (4) WAS (1)

GAEC EO RELEASE: C JK 8/9

MODEL	EFFECTIVITY EI ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT 70	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

APPROVED BY									
DATE	7/27/68	7/29/68		7/26/68	7/29/68		7/30/68	8-8-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: CHANNEL DESCENT STAGE - REMOVEABLE HEAT SHIELD
DRAWING NO. LDW280-18598
EO NO. A1

CDR 8-2-68
ISSUED BY P GEORGOPOULOS / P THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

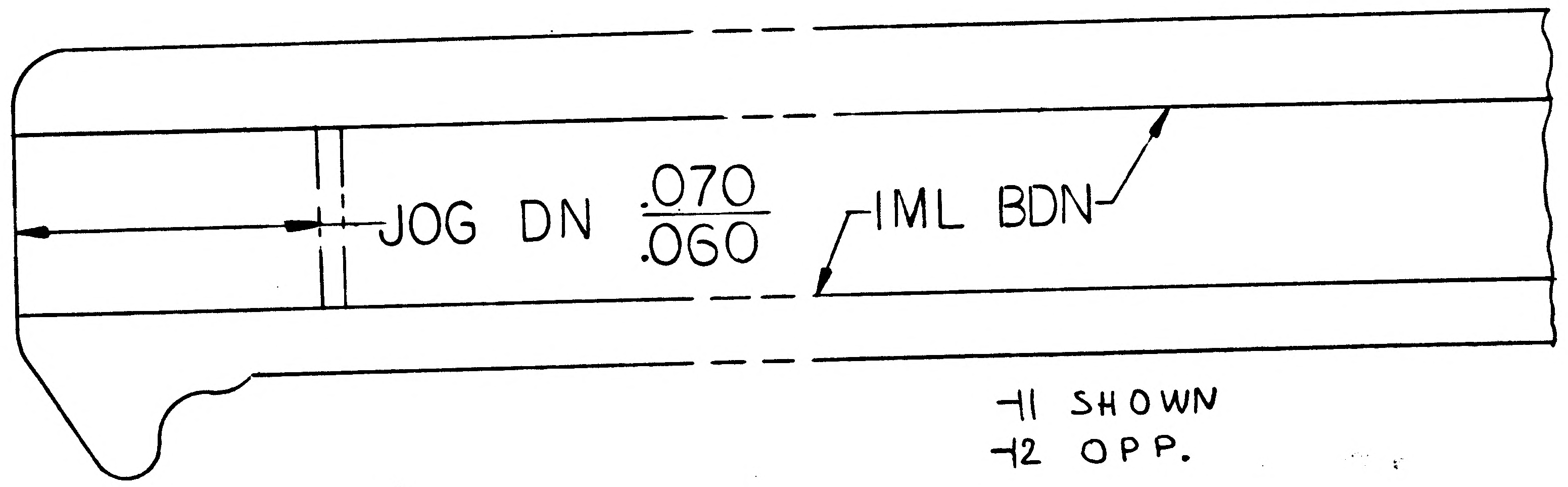
E. 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18598
EO NO. A2
CONTROL INFO NO. LDW280B6071

IN F/D ON -11 & -12 EFF. LM-5(35) THRU LM-11(45) & DVT70
CHANGE DEPTH OF JOGGLE AS SHOWN BELOW. WAS $\frac{.040}{.030}$

LFM



-11 SHOWN
-12 OPP.

LCD 2965 PKG1 CCA1235 (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY (BASE HEATSHIELD)

DESCRIPTION OF EO: ON -11 & -12 CHANGED DEPTH OF JOGGLE TO $\frac{.070}{.060}$, WAS $\frac{.040}{.030}$

GAEC EO RELEASE: JK 11/6/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-11(45)	
		DVT 70	
		LFM200(LM-5)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAS			RJH	NM		JWP	
DATE	10/31/68			10-31-68	10/31/68		10/31/68	11-6-68
	VD1							

PRIORITY: C
DRAWING TITLE: CHANNEL DESCENT STAGE - REMOVABLE HEAT SHIELD
DRAWING NO.: LDW280-18598
EO NO.: A2

CDR 110868
ISSUED BY J. BISZ/P. THORJUSEN X84662
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1441
CONTROL INFO NO. LDW280B7441		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280 -18594	A2	SEE DWG
✓ -18595	A3	↑
✓ -18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	↓
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM — *	JK 5/6/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
LM		LM-15(45)		✓			✓

APPROVED BY								
				PSt	W/dl			
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/6/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1441

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
EN~~G~~INEERING ORDER

NO. LEO 280
EO NO. 1558
CONTROL INFO NO. LDW280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1[illegible]	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
✓ 594		A3
✓ 595		A4
✓ 598		A4
601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 FG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: (R) SdH 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	PJt				M			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~ASST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ml) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18600

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LTA-3DR/1(460)	1EA
↕	↕	LTA-11(23)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60628	LM-10(40)	1EA
PART NO. LDW280-18600-15,-16, -17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LTA-3DR/1(460)	2
↕	↕	LTA-11(23)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60628	LM-10(40)	2
PART NO. LDW280-18600-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54531	LTA-3DR/1(460)	1
↕	↕	LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-54531	LM-10(40)	1
PART NO. LDW280-18600-11		GAEC SCH NO. 50-6	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO. 207	VC(001) ME-16	10/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3994 PKG 87	
CDR 10-06-69	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	E. SICK		
LAYOUT BY	R. BEHAN 10-02-69 R.C.B.		
CHECKED BY	10-1-69		
GR LEADER	10-3-69		
VEH DES INT	10-6-69		
STRUCTURE	N. MARKELOFF 10-6-69	PROJ ENGR	10/6/69
STRUCTURE	N/H 10/6/69	REL GROUP	March 10-6-69
WEIGHTS			

② GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE-RH AFT BEAM PANEL
GOX MODULE SPT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18600

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18600-19	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 3	T6	88	
								-17 ↕	↕	BRACKET	↕	↕	↕	.032 × 5 × 8	↕	↕	
								-16		STIFFENER				.032 × 3 × 7			
								-15		STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 7	T6		
								-13		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS183A13DG × 1	NONE		
								LDW280-18600-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.032 × 2 × 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18600

SCALE NONE SHEET 2.00

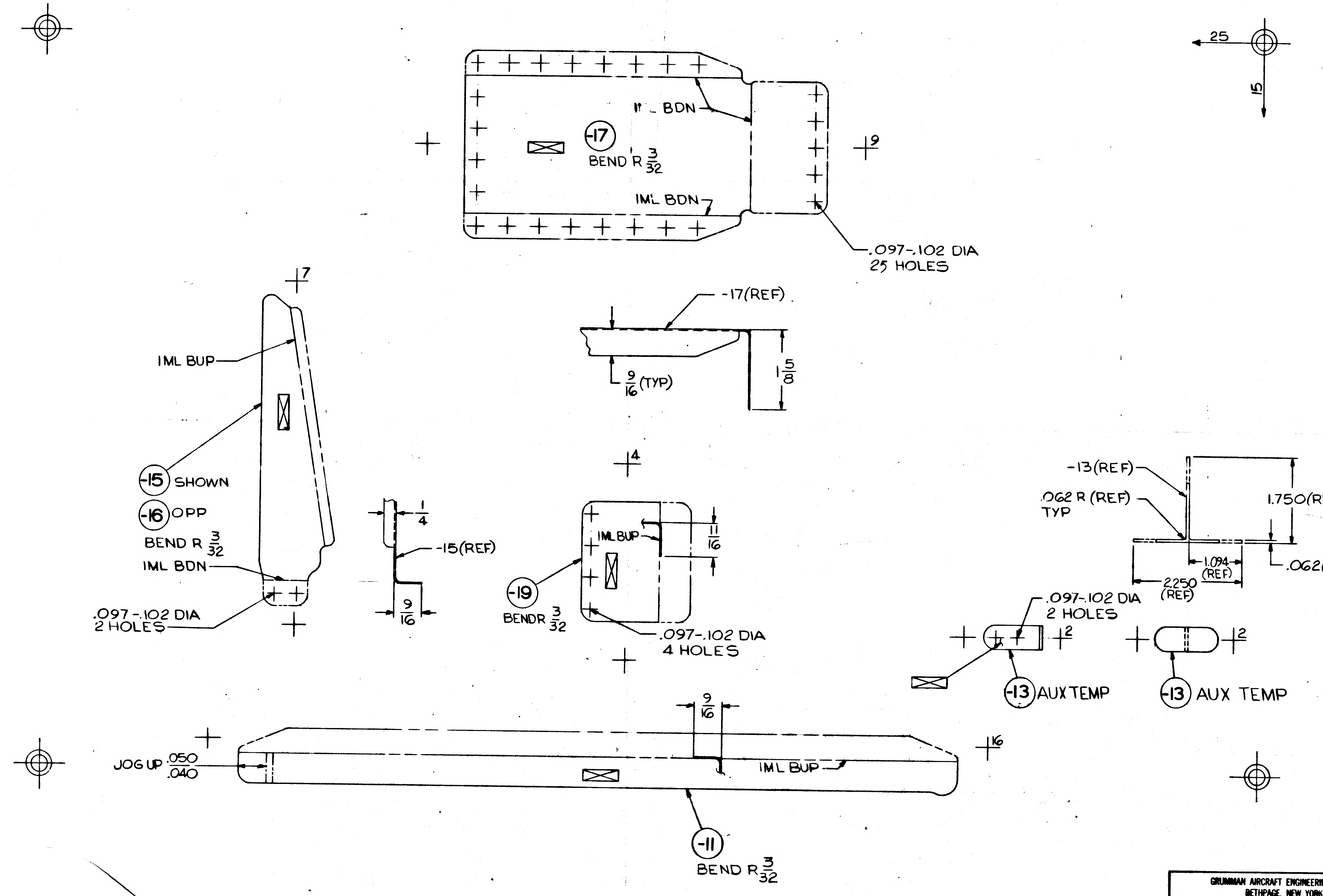
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [illegible]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.


25
15
IML BDN
-17
BEND R 3/32
IML BDN
9
.097-.102 DIA
25 HOLES
-17(REF)
9/16 (TYP)
1 5/8
7
IML BUP
-15 SHOWN
-16 OPP
BEND R 3/32
IML BDN
.097-.102 DIA
2 HOLES
1/4
-15(REF)
9/16
4
IML BUP
11/16
-19
BEND R 3/32
.097-.102 DIA
4 HOLES
-13(REF)
.062 R (REF) TYP
1.750(REF)
1.094 (REF)
2.250 (REF)
.062(REF) TY
.097-.102 DIA
2 HOLES
2
-13 AUX TEMP
2
-13 AUX TEMP
9/16
JOG UP .050 .040
IML BUP
16
-11
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18600
SCALE FULL		SHEET 300

FOR PHOTO REPRODUCTION

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1737
CONTROL INFO NO. LDW28089178

REMOVE LTA-3D/R-1(460) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-60628.

PART NO. ✱	CHANGE NO.	DWG. NOMENCLATURE
✓ LDW280-18552-11,-15,-16,-17,-18	A1	SEE DWG
✓ LDW280-18600-13,-15,-16,-17,-19	A1	↕
LDW280-18603-11,-13,-15	A1	↕
LDW280-18645-1,-3	A1	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 87

REASON FOR EO: PARTS NOT REQ'D FOR STATIC TEST VEHICLE

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF ✱ BY REMOVING LTA-3D/R-1(460)

GAEC EO RELEASE: (5) JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R-1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY								
DATE	10/22			10-21-69	10/22/69		10/23/69	10/23/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1737

10-31-69
ISSUED BY R. BEHAN x86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	3
		LM-15 (45)	12
		LM-14 (44)	12
		LM-13 (43)	12
		LM-12 (42)	12
		LM-11 (41)	12
		LM-10 (40)	12
		LM9 (39)	12
		LM-8 (38)	12
		LM-7 (37)	12
LM		LM-6 (36)	12
LFM 200	LDW280-66663	LM-5 (35)	12

LDW280-18601-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1
		LM-15 (45)	4
		LM-14 (44)	4
		LM-13 (43)	4
		LM-12 (42)	4
		LM-11 (41)	4
		LM-10 (40)	4
		LM-9 (39)	4
		LM-8 (38)	4
		LM-7 (37)	4
LM		LM-6 (36)	4
LFM 200	LDW280-66663	LM-5 (35)	4
PART NO. LDW280-18601-21			

LDW280-18601

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1
		LM-15 (45)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10 (40)	2
		LM-9 (39)	2
		LM-8 (38)	2
		LM-7 (37)	2
LM		LM-6 (36)	2
LFM 200	LDW280-66663	LM-5 (35)	2
PART NO. LDW280-18601-11			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	DVT (70)	1
		LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM		LM-6 (36)	1
LFM 200	LDW280-66663	LM-5 (35)	1

LDW280-18601-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LFM 200	LDW280-66663	LM-5 (35)	1 EA
PART NO. LDW280-18601-17-18 & -19			

WORK PKG FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REL INFO c

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965 (CCA1235)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY A. LITVINOFF 8-3-68
LAYOUT BY L. TAVIANINI
CHECKED BY John Bell 8/5/68
GR LEADER 8-7-68
VEH DES INT 8/8/68
STRUCTURES
STRUCTURES N. MARKELOFF 8/9/68
WEIGHTS
RELIABILITY
THERMO
PROJ ENGR 8/9/68
REL GROUP 8/12/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE ~ LOWER
THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18601
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 071968

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18601-21	E	CLIP	TITANIUM SH	MIL-T-9046D TYPE III COMP C	6AL-4V-ANNEALED	.040 × 2 × 3	NONE	NONE	
								-19		CLIP				.040 × 2 × 4			
								-18		CLIP				.040 × 3 × 4			
								-17		CLIP				.040 × 3 × 4			
								-15		CLIP				.030 × 2 × 3			
								-13		CLIP				.040 × 2 × 3			
								LDW280-18601 -11	E	CLIP	TITANIUM SH	MIL-T-9046D TYPE III COMP'C'	6AL-4V-ANNEALED	.040 X 2 × 3	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18601

SCALE NONE

SHEET 2.00

ENG 77.2 7-55

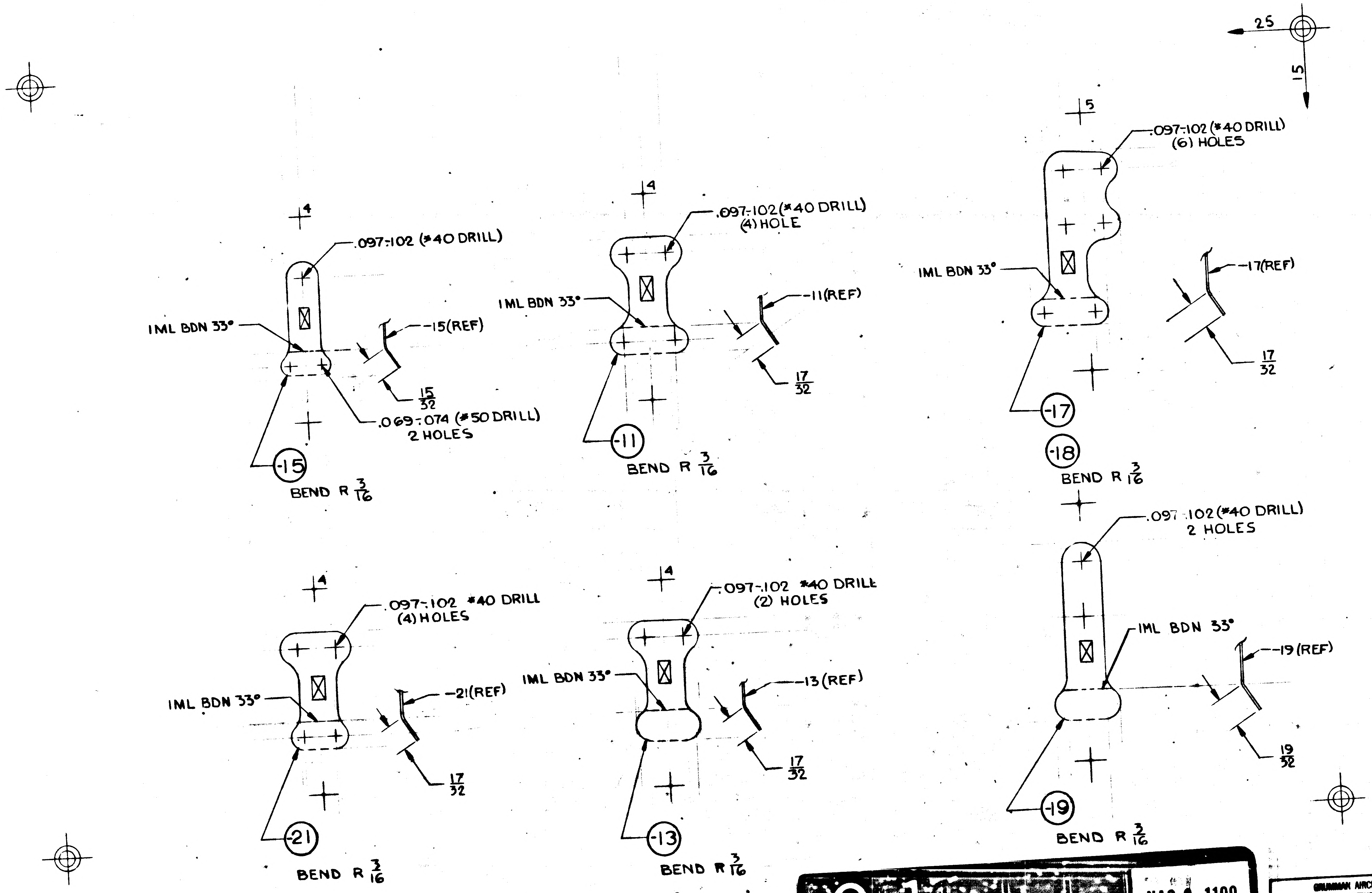
01

NAS 9-1100

LDW280-18601

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
5
.097-.102 (#40 DRILL)
(6) HOLES
IML BDN 33°
-17(REF)
17/32
-17
-18
BEND R 3/16
4
.097-.102 (#40 DRILL)
(4) HOLE
IML BDN 33°
-11(REF)
17/32
-11
BEND R 3/16
4
.097-.102 (#40 DRILL)
IML BDN 33°
-15(REF)
15/32
.069-.074 (#50 DRILL)
2 HOLES
-15
BEND R 3/16
.097-.102 (#40 DRILL)
2 HOLES
IML BDN 33°
-19(REF)
19/32
-19
BEND R 3/16
4
.097-.102 #40 DRILL
(4) HOLES
IML BDN 33°
-21(REF)
17/32
-21
BEND R 3/16
4
.097-.102 #40 DRILL
(2) HOLES
IML BDN 33°
-13(REF)
17/32
-13
BEND R 3/16

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18601
SCALE FULL		SHEET 3.0.1

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18601
EO NO. A1
CONTROL INFO NO. LDW 280-B5411

FOR -13 & -19 REVISE N/A AS SHOWN

EFFECTIVITY LM6(36) THRU LM15 (45) & LFM 200 LM5(35)

N/A (NOW) LDW 280-66661
(WAS) LDW 280-66663

EFFECTIVITY DVT 70
N/A (NOW) LSK280-11267
(WAS) LDW 280-66663

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑

LCD 2965 PKG 2 CCA1235 (5)

GAEC EO RELEASE: E C K

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO: REVISE N/A FOR -13 & -19. (WAS) LDW 280-66663 (NOW) LDW 280-66661 EFF LM6 (36) THRU LM 15 (45) & LFM 200 LM5 (WAS) LDW280-66663 (NOW) LSK 280-11267 EFF DVT(70)

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	
LM		LM-15(45) & DVT 70	
LM	LFM 200	LM 5(35)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP
PRIORITY: C

APPROVED BY								
DATE	9/6/68			9/6/68		9/9/68	9-11-68	
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING TITLE: CLIPS DESENT STAGE-LOWER THERMAL SHIELD
DRAWING NO. LDW280-18601
EO NO. A1

CDR091368
ISSUED BY P. GEORGOPOULOS / P THORJUSEN X 1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1212
CONTROL INFO NO. LDW 280B6005

CHG LTR	DWG NO. *	RESTRICT FOR USE ON	WAS USED ON
✓ A2	LDW280-18601 -19	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
A1	LDW280-18638 -1,-2,-3,-5,-6,-7,-9,-11 & -12	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70), LM-5(35) LFM 200
A1	LDW280-18656-1	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
A1	LDW280-18662 -17 & -21	LM-6(36) THRU LM-15(45) LM-5(45) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
A2	LDW280-66655 -1	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35)	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35), DVT-70

* FOR TITLE SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 PKG #2 CCA# 1235 (5)

REASON FOR EO: BASE HEAT SHIELD QUALIFICATION TEST

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING DVT-(70)

GAEC EO RELEASE: 11/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT-(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

		VD1	SUPPORT	~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				ALE	RJT				
DATE		11/7/68		11-7-68	11-7-68	11/7/68		11/7/68	11/11/68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1212

CDR 11/13/68
ISSUED BY D. SHAPIRO / P. THORTUSEN JR. X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18601		EO NO.	A3
CONTROL INFO NO. LDW280 B6434			

IN MB ON -15, 11 REQ'D (WAS) 12 REQ'D LFM200 LM-5(35), LM-6(36) THRU LM-15(45)
IN MB, F/D & B/M REMOVE -17

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2965 PKG 2 CCA 1235

(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE ACCESSIBILITY FOR QUICK DISCONNECT	ON -15 11 REQ'D (WAS) 12 REQ'D REMOVED -17	12/5/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✗	✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	12-4-68	12/4/68		12-4-68	12/4/68		12/4/68	12-5-68
	VDI	Thermo ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CUPS-D/S-LWR THERMAL SHIELD	LDW280-18601	A3

CDR120C68
ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280 -18594	A2	SEE DWG
✓ -18595	A3	
✓ -18598	A3	
✓ -18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

® GAEC EO RELEASE: JK 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/6/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1441

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. LDW280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
-18638-1,-2,-3	↕	↕	A8
-18676-11,-13,-15,-17,-19			B4
-18677-11,-13,-15,-17,-19			B4
-18678-11,-13,-15,-17,-19			B4
-18679-11,-13,-15,-17,-19			B4
-18680-11,-13,-15,-17,-19			B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1847

CDR 2/20/70
ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18602

LFM

PART NO. LDW280-18602-19;-20

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM 200	LDW280-66528	LM-5(35)	1 EA
LM	LDW280-66528	LM-15(45)	1 EA
↑	↑	LM-14 (44)	↑
		LM-13(43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8(38)	
↓	↓	LM-7 (37)	↓
LM	LDW280-66528	LM-6 (36)	1 EA

PART NO. LDW280-18602-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT-70	3
LFM 200	LDW280-66528	LM-5(35)	8
LM	LDW280-66528	LM-15(45)	8
↑	↑	LM-14 (44)	↑
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8 (38)	
↓	↓	LM-7 (37)	↓
LM	LDW280-66528	LM-6(36)	8

PART NO. LDW280-18602-15;-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT-70	1 EA
LFM 200	LDW280-66528	LM-5(35)	1 EA
LM	LDW280-66528	LM-15(45)	↑
↑	↑	LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8(38)	
↓	↓	LM-7 (37)	↓
LM	LDW280-66528	LM-6(36)	1 EA

PART NO. LDW280-18602-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM 200	LDW280-66528	LM-5(35)	1
LM	LDW280-66528	LM-15(45)	1
↑	↑	LM-14 (44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8(38)	1
↓	↓	LM-7 (37)	1
LM	LDW280-66528	LM-6 (36)	1

PART NO. LDW280-18602-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT-70	1
LFM 200	LDW280-66528	LM-5(35)	2
LM	LDW280-66528	LM-15(45)	2
↑	↑	LM-14(44)	↑
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
		LM-10(40)	
		LM-9 (39)	
		LM-8(38)	
↓	↓	LM-7 (37)	↓
LM	LDW280-66528	LM-6 (36)	2

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-21	PRIM NO. 207	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965 CCA 1235	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	KOCHLING 8-9-68	RELIABILITY	
LAYOUT BY	MEVORAH	THERMO	8/26/68
CHECKED BY	JOHN BELL 8/10/68		
GR LEADER	Thorgusen 8-19-68		
VEH DES INT	8/19/68		
STRUCTURES		PROJ ENGR	J. Pusateri 8/21
STRUCTURES	N. MARKELOFF 8/21/68	REL GROUP	8-26-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE ~ THERMAL SHIELD
STRAP SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18602
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 071968

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18602-21	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 2 × 4	NONE	88	
		-20						.032 × 3 × 4			
		-19						.032 × 3 × 4			
		-17						.032 × 2 × 4			
		-15			AL ALLOY SH	QQ-A-250/4	2024-T3	.032 × 3 × 4			
		-13			AL ALLOY EXTR	QQ-A-200/2	2014-T6511	DIE#65593 × 2			
		LDW280-18602-11	E	CLIP	AL ALLOY EXTR	QQ-A-200/2	2014-T6511	DIE#65593 × 1½	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18602

SCALE NONE

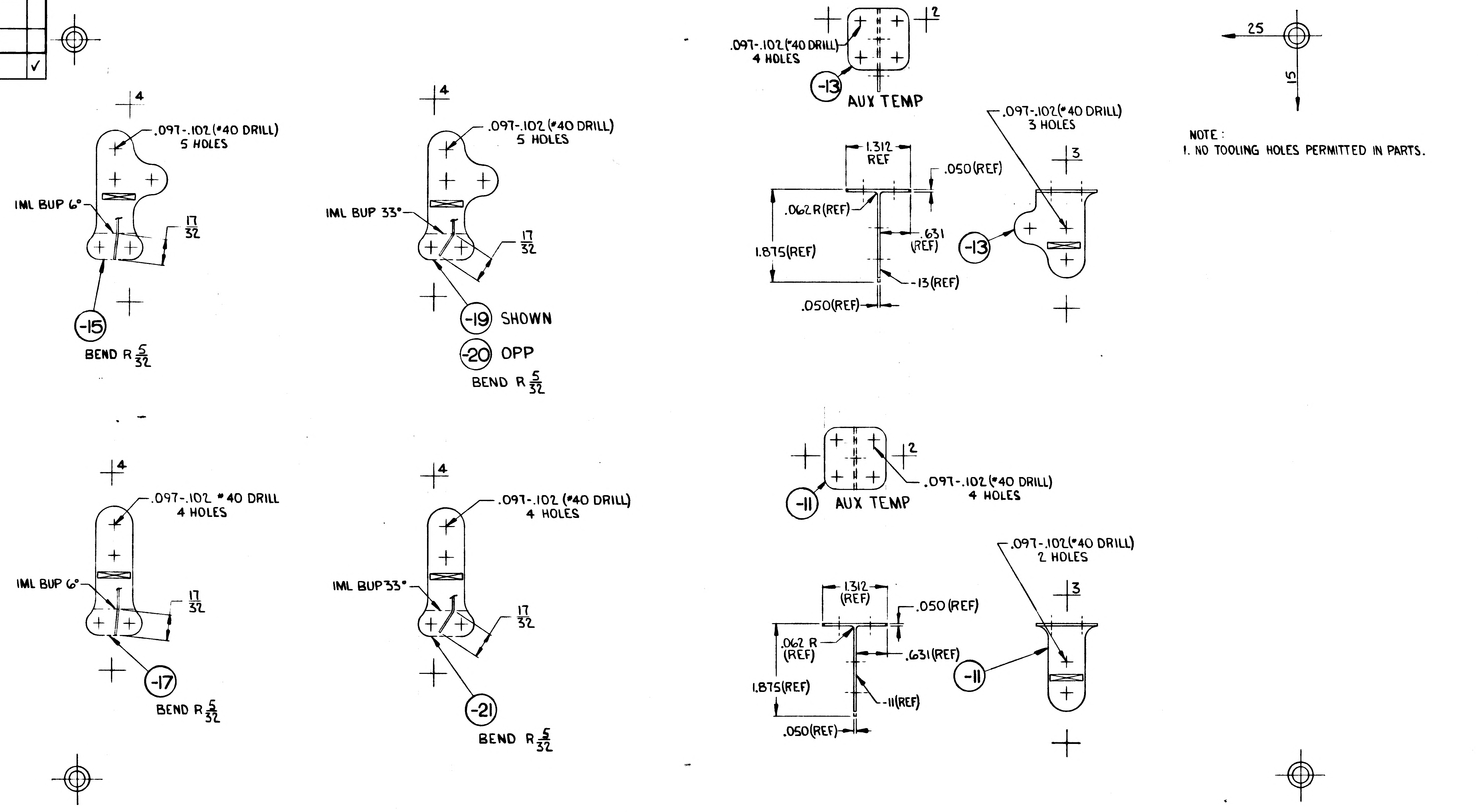
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



.097-.102 (#40 DRILL)
4 HOLES
-13
AUX TEMP
2
25
15
4
.097-.102 (#40 DRILL)
5 HOLES
IML BUP 6°
17/32
-15
BEND R 5/32
4
.097-.102 (#40 DRILL)
5 HOLES
IML BUP 33°
17/32
-19 SHOWN
-20 OPP
BEND R 5/32
1.312
REF
.050(REF)
.062 R(REF)
.631
(REF)
1.875(REF)
-13(REF)
.050(REF)
.097-.102 (#40 DRILL)
3 HOLES
3
-13
4
.097-.102 #40 DRILL
4 HOLES
IML BUP 6°
17/32
-17
BEND R 5/32
4
.097-.102 (#40 DRILL)
4 HOLES
IML BUP 33°
17/32
-21
BEND R 5/32
2
.097-.102 (#40 DRILL)
4 HOLES
-11
AUX TEMP
1.312
(REF)
.050(REF)
.062 R
(REF)
.631(REF)
1.875(REF)
-11(REF)
.050(REF)
.097-.102 (#40 DRILL)
2 HOLES
3
-11

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18602	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18602
EO NO. A1
CONTROL INFO NO. LDW280B6004

FOR -17, 7 REQ'D/MOD; (WAS) 1 REQ'D/MOD
N/A LSK280-11267, ON DVT(70)

FOR -11 & -21
RESTRICT FOR USE ON-LM-6(36) THRU LM-15(45) & LM-5(35) LFM200.
WAS USED ON- LM-6(36) THRU LM-15(45), LM-5(35) LFM200 & DVT(70)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 PKG. #2 CCA 1235 (5)

REASON FOR EO: QUANTITY REQUIRED FOR TEST SPECIMEN

DESCRIPTION OF EO: FOR -17 7 REQD/MOD WAS 1 REQD/MOD ON DVT(70). RESTRICTED -11 & -21 BY REMOVING DVT(70)

GAEC EO RELEASE: JK 11/9/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	~~RELTAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	11/7/68		11-7-68	11-7-68	11/7/68		11/7/68	11-9-68

PRIORITY: C
DRAWING TITLE: CLIPS ~ D/S ~ LOWER THERMAL SHIELD SUPPORT
DRAWING NO. LDW280-18602
EO NO. A1

CDR 11/6/68
ISSUED BY JOE LUCCHESI/G. ZEMAN x86046 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280 -18594	A2	SEE DWG
✓ -18595	A3	
✓ -18598	A3	
✓ -18601	A4	
✓ -18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

Ⓡ GAEC EO RELEASE: JK 5/6/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/16/69			4-2-69	4/8/69		4/9/69	5/6/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO.: 1441

052269
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. -DW280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↕	↕	A8
✓ -18676-11,-13,-15,-17,-19			B4
✓ -18677-11,-13,-15,-17,-19			B4
✓ -18678-11,-13,-15,-17,-19			B4
✓ -18679-11,-13,-15,-17,-19			B4
✓ -18680-11,-13,-15,-17,-19			B6
✓ LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
✓ LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 92

(5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF. LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	RST							
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18603

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LTA-3DR/1(460)	1EA
		LTA-11(23)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60628	LM-10(40)	1EA
PART NO. LDW280-18603-13&-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LTA-3DR/1(460)	2
		LTA-11(23)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60628	LM-10(40)	2
PART NO. LDW280-18603-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				

LAST SECT LTR USED ·
LAST DASH NO. USED -15
GRUMMAN REL INFO
PRIM NO. 207
JK(001) ME-16 10/6/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994
CDR 10-06-69 PKG 87

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E. SICK	RELIABILITY	
LAYOUT BY	R. BEHAN 10-02-69 RCB		
CHECKED	JLCobb 10-1-69		
GR LEADER	JRC Thorjussen 10-3-69		
VEH DESINT	F DeKesperma 10-6-69		
STRUCTURE	N. MARKELOFF 10-6-69	PROJ ENGR	10/6/69
STRUCTURE	NJH 10/6/69	REL GROUP	L. Marsh 10-6-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - RH AFT BEAM PANEL
GOX MODULE

SIZE B
CODE IDENT NO. 26512
LDW280-18603
SCALE NONE
SHEET 1.00 OF 3

1 12-65

01
NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18603-15	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 5	T6	88	
		LDW280-18603-13	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 5	T6	88	
		LDW280-18603-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 3	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18603

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

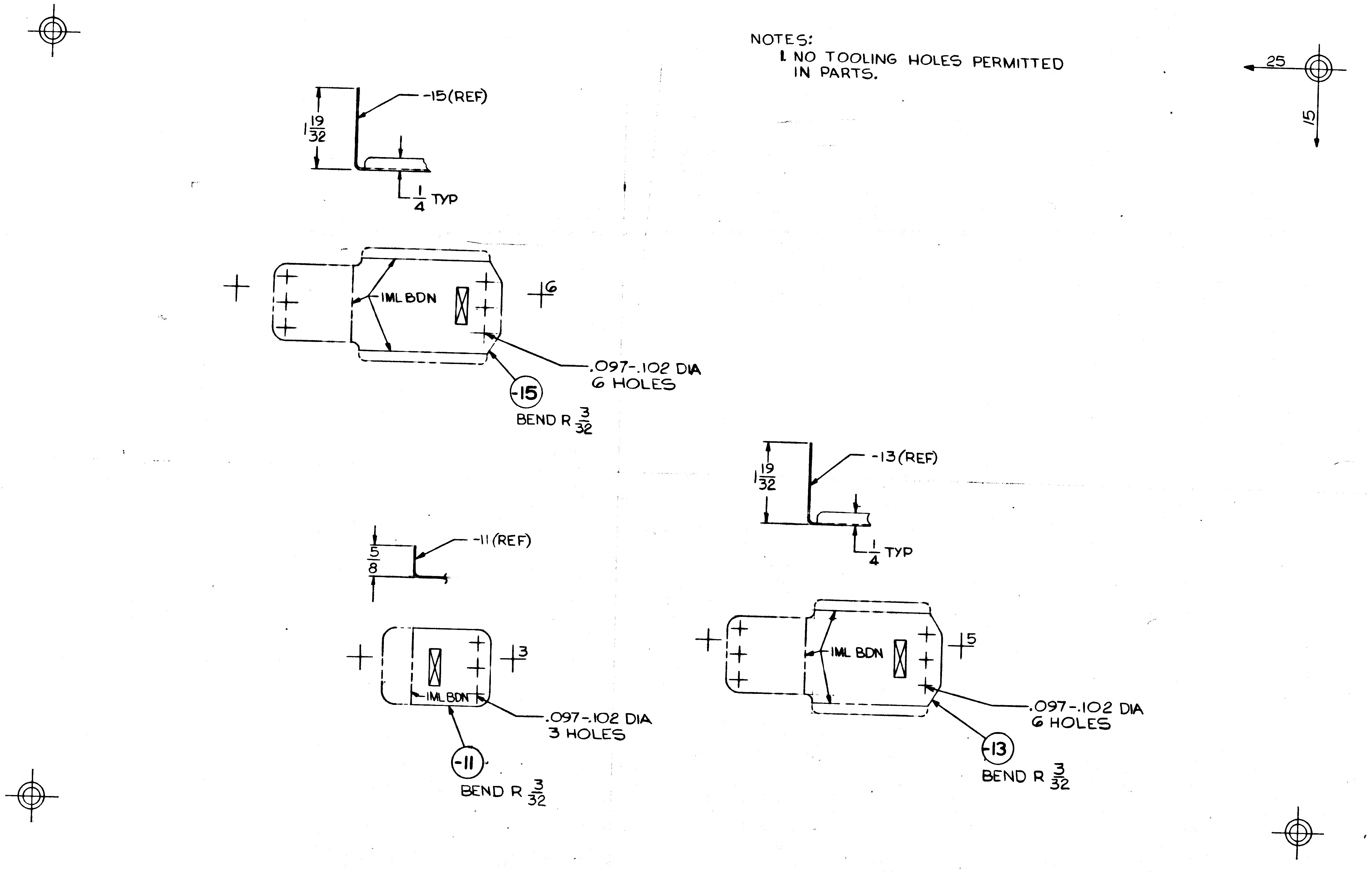
01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
-15(REF)
1 19/32
1/4 TYP
IML BDN
6
.097-.102 DIA
6 HOLES
-15
BEND R 3/32
-13(REF)
1 19/32
1/4 TYP
-11(REF)
5/8
3
IML BDN
.097-.102 DIA
3 HOLES
-11
BEND R 3/32
IML BDN
5
.097-.102 DIA
6 HOLES
-13
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18603
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 73.3 REV 3-67

LDW280-18603

01

NAS 9-1100

E ...1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1737
CONTROL INFO NO. LDW28089178

REMOVE LTA-3 D/R-1(460) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-60628.

PART NO. *	CHANGE NO.	DWG. NOMENCLATURE
✓ LDW280-18552-11,-15,-16,-17,-18	A1	SEE DWG
✓ LDW280-18600-13,-15,-16,-17,-19	A1	↕
✓ LDW280-18603-11,-13,-15	A1	↕
LDW280-18645-1,-3	A1	SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 87

REASON FOR EO: PARTS NOT REQ'D FOR STATIC TEST VEHICLE

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF * BY REMOVING LTA-3D/R-1(460)

GAEC EO RELEASE: (5) JK 10/23/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R-1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				GH				
DATE	10/22			10-21-69	10/22/69		10/23/69	10/23/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1737

10-31-69
ISSUED BY R. BEHAN x86046
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18604

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	LM-4(34)	4 EA
LFM130	LDW280-66518	LTA-8(18)	4 EA
PART NO. LDW280-18604-15 & -19			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	LM-4(34)	1EA
LFM130	LDW280 66518	LTA-8(18)	1EA
PART NO. LDW280-18604-11, 12, -13-14 & -17			

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL^C INFO

PRIM NO.	JK(001)	
207	MP-16	6/15/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

— ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 021-37 ok
LCD 2502
CCA 857

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE

DRAWN BY	ART STERNBERG 5-21-68	RELIABILITY	
LAYOUT BY	JOE LUCCHESI		
CHECKED BY	GB 5/25/68		
GR LEADER	Thomas 5-29-68		
VEH DES INT	J Pisatin 5/31/68		
STRUCTURES	WB W/H 6/3/68	PROJ ENGR	J Pisatin 6/3/68
STRUCTURES	FEB 6/3/68	REL GROUP	J. Marsh 6/5/68
WEIGHT			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE - QUAD IV MESS BOX
SIMULATED PALLET STRUCTURE

SIZE B
CODE IDENT NO. 26512
LDW280-18604
SCALE NONE
SHEET 1.00 OF 3

CDR 6/7/68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18604 -19	E	DOUBLER	AL ALLOY SH.	QQ-A-250/4	2024-T3	.050 x 4 x 4	NONE	88	
		-17	↕	ANGLE	↕	↕	↕	.050 x 3 x 29	↕	↕	
		-15	↕	ANGLE	↕	↕	↕	.050 x 3 x 6	↕	↕	
		-14	↕	CHANNEL	↕	↕	↕	.050 x 10 x 29	↕	↕	
		-13	↕	↕	↕	↕	↕	.050 x 10 x 29	↕	↕	
		-12	↕	↕	↕	↕	↕	.050 x 10 x 35	↕	↕	
		LDW280-18604-11	E	CHANNEL	AL ALLOY SH.	QQ-A-250/4	2024-T3	.050 x 10 x 35	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18604

SCALE NONE

SHEET 2.00

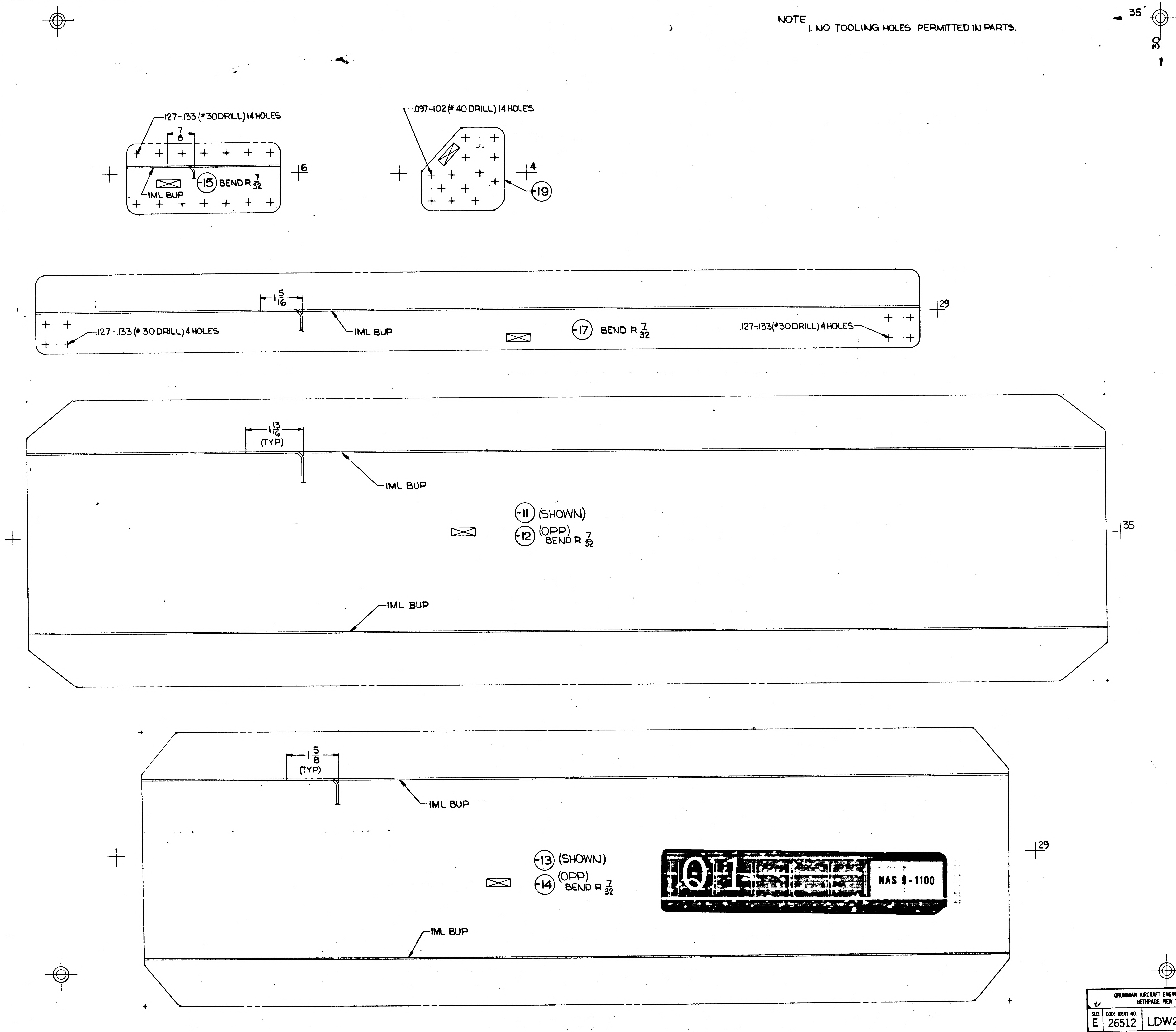
ENG 77.2 7-66

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.


35
30
.127-.133 (#30 DRILL) 14 HOLES
7/8
IML BUP
-15 BEND R 7/32
6
.097-.102 (#40 DRILL) 14 HOLES
4
-19
1 5/16
29
.127-.133 (#30 DRILL) 4 HOLES
IML BUP
-17 BEND R 7/32
.127-.133 (#30 DRILL) 4 HOLES
1 13/16 (TYP)
IML BUP
-11 (SHOWN)
-12 (OPP) BEND R 7/32
35
IML BUP
1 5/8 (TYP)
IML BUP
-13 (SHOWN)
-14 (OPP) BEND R 7/32
29
NAS 9-1100
IML BUP

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18604
SCALE FULL		SHEET 300

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18604
EO NO. A1
CONTROL INFO NO. LDW280B3944

IN M/B
FOR -11,-12,-13,-14,-15,-17&-19 ADD QUAL TEST(72)W/A LDW280-66518
1 EA REQ'D

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3128 PKG 2

REASON FOR EO: TO ADD QUALITY TEST TO MESS PALLET

DESCRIPTION OF EO: IN M/B, FOR -11,-12,-13,-14,-15,-17&-19 ADDED QUAL TEST(72)N/A LDW280-66518, 1EA REQ'D

(5)
GAEC EO RELEASE: C
6/24/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL. TEST (72)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT
APPROVED BY					WB			
DATE	6/21/68			6-21-68	6/21/68		6/21/68	6-24-68

PRIORITY: C
DRAWING TITLE: CHANNEL~DESCENT STAGE~QUAD IV MOD. EQUIP. STOWAGE
DRAWING NO.: LDW280-18604
EO NO.: A1

ISSUED BY F.MADDEN/P.THORJUSEN SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18604
EO NO. A2
CONTROL INFO NO. LDW280B 4118

ON LDW 280-18604-19 CHANGE
QUANTITY REQD. WAS 4 S/B 8

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-37 PKG 3 LCD 2502 CCA857 PKG 2 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE ADDITIONAL STRENGTH	ON LDW 280-18604-19 CHANGE QUANTITY REQD WAS 4 S/B 8	VK 6/27/8

MODEL	EFFECTIVITY		
	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
	LFM 130	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP

APPROVED BY								
DATE	6/24/68	6/24/68		6/24	6/24/68		6/26/68	6-27-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ DESCENT STAGE - QUAD IV MESS BOX SIMULATED PALLET, STRUCTURE	LDW280-18604	A2

6-24-68
ISSUED BY ED COLEMAN X 1153 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18604
EO NO. A3
CONTROL INFO NO. LDW280B4835

IN M/B FOR -11,-12,-13,-14 & -17 ADD QUAL TEST (70) N/A LDW280-66518 1 EA REQD; REMOVE QUAL TEST (72) N/A LDW280-66518 1 EA REQD.

IN M/B FOR -15 ADD QUAL TEST (70) N/A LDW280-66518 4 REQD; REMOVE QUAL TEST (72) N/A LDW280-66518 1 REQD.

IN M/B FOR -19 ADD QUAL TEST (70) N/A LDW280-66518 8 REQD; REMOVE QUAL TEST (72) N/A LDW280-66518 1 REQD.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3128 PKG #2 ⑤

REASON FOR EO: INCORRECT MODULE IN M/B

DESCRIPTION OF EO: IN M/B FOR -11,-12,-13,14,-15,-17 & -19 ADD QUAL TEST (70). IN M/B FOR -11,-12,-13,-14,-15,-17 & -19 REMOVE QUAL TEST (72) N/A LDW280-66518 1 EA REQD.

Ⓡ GAEC EO RELEASE: C HF 7/26/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL. TEST (70)	
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
					W/LA			
DATE	7/24/68			7-24-68	7/24/68		7/26/68	7-26-68

PRIORITY: C

DRAWING TITLE: CHANNEL DESCENT STAGE QUAD IV MESS BOX

DRAWING NO. LDW280-18604 EO NO. A3

080168 ISSUED BY J. CORTELYOU / P. THORJUSEN x1153 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1558
CONTROL INFO NO. LDW 280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW 280-1	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
✓ 594		A3
✓ 595		A4
✓ 598		A4
✓ 601		A5
LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (.23) REQMTS

GAEC EO RELEASE: 8-13-69
8/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PJT				M			Bauman
DATE	7-29-69			7/29/69	8-2-69		8/2/9	8-5-69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

LDW280-18605

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66518	LM-4(34)	6
PART NO. LDW280-18605-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23518	LM-4(34)	1
LFM 130	LDW280-23518	LTA-8(18)	1
PART NO. LDW280-18605-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO.	JK(001)
207	MP-16 6/15/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS — ANGLES

±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 1021-37 2502

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	V.NARONIS 5/28/68	RELIABILITY	
LAYOUT BY	J.LUCCHESI		
CHECKED BY	S. Szalewski 6-1-68		
GR.LEADER	Thorjuson 6-5-68		
VEH.DES.INT.	6/6/68		
STRUCTURES	WB 6/7/68	PROJ ENGR	J. Pusateri 6/7/68
STRUCTURES	4/6/68	REL GROUP	S. Marsh 6/15/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-QUAD IV MODULARIZED
EQUIP. STOWAGE SYSTEM-PALLET(SIMULATED)

SIZE	CODE IDENT NO.	
B	26512	LDW280-18605

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CCA857

CDR 6/3/68 CDR 6/7/68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18605-13	E	BLOCK	AL ALLOY PLATE	QQ-A-250/12	7075-T6	.500 X 3 X 3	NONE	88	
		LDW280-18605-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.080x2x38	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18605

SCALE NONE
SHEET 2.00

DNG 77.2 7-65

01

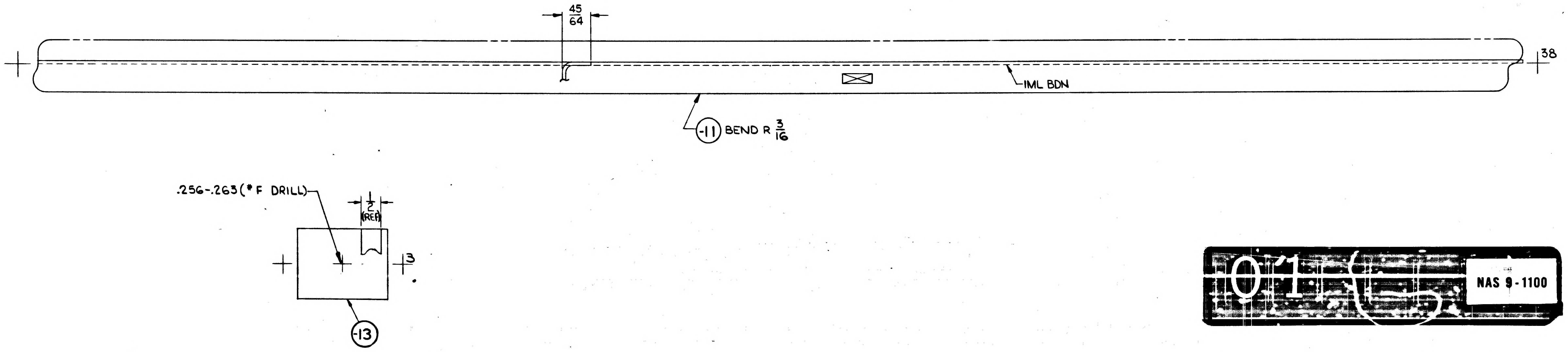
NAS 9-1100

TRAM. O.K.
TL 5-27-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

35
30

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18605
SCALE FULL		SHEET 3.00

ENG 73.4 REV. 5-67

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18605
EO NO. A1
CONTROL INFO NO. LDW280B3945

IN M/B
FOR -11 & -13 ADD QUAL. TEST (72) N/A LDW280-66518 & LDW280-23518
-11 1 REQ'D. -13 6 REQ'D

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3128 PKG 2 (5)

REASON FOR EO: TO ADD QUALITY TEST TO MESS PALLET

DESCRIPTION OF EO: IN M/B, FOR -11 & -13, ADDED QUAL TEST, N/A LDW280-66518 & LDW280-23518. -11 (1) REQD -13 (6) REQD

GAEC EO RELEASE: C JK 6/24/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					WB			
DATE	6-21-68			6-21-68	6/21/68		6/21/68	6-24-68
	VDI							

PRIORITY: C
DRAWING TITLE: ANGLE ~ DESCENT STAGE ~ QUAD IV - MOD. EQUIP. STOWAGE
DRAWING NO. LDW280-18605
EO NO. A1

ISSUED BY F MADDEN / P. THORJUSEN SECTION VEH. DES' INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORD

DWG NO. LDW280-18605	EO NO. A2
CONTROL INFO NO. LDW280B4836	

REMOVE FROM F/D, B/M & M/B LDW280-18605 -13

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3128 PKG#2, LCD 2502 PKG#2 (CCA 857) ⑤

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
BALLAST PLATE TO REPLACE SHIM	REMOVE FROM F/D, B/M & M/B LDW280-18605-13	HF 7/25/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
LM		QUAL. TEST (72)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					W/H			
DATE	7/24/68 VDI			7-24-68	7/24/68		7-24-68	7-25-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE DESCENT STAGE QUAD IV MESS PALLET	LDW280-18605	A2

080168
ISSUED BY J. CORTELYOU/P. THORJUSEN X1153 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00&1.10		P					INC EO A1 - ADDED SH 1.10	LM-4 THRU LM-15			BUBBICO 10-17-68		
	2	3.00		LFM-155, P					INC EO A2	LM-3 THRU LM-15					
	3	1.00		LFM-155					INC EO A3	LM-3					
	4	1.00		LFM-155					INC EO A4	LM-3					
	5	1.00		LFM-126 P					INC EO A5	LTA-8					
	6	1.00							INC LEO280-1088	TM-5/R					
	7	1.00							INC LEO280-1157	LM-6 THRU LM-15					
	8	1.00						Ⓡ	INC LEO 280-1291	LM-8 THRU LM-15		H.D.	SMALL 3-26-69	J.V.	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18607	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

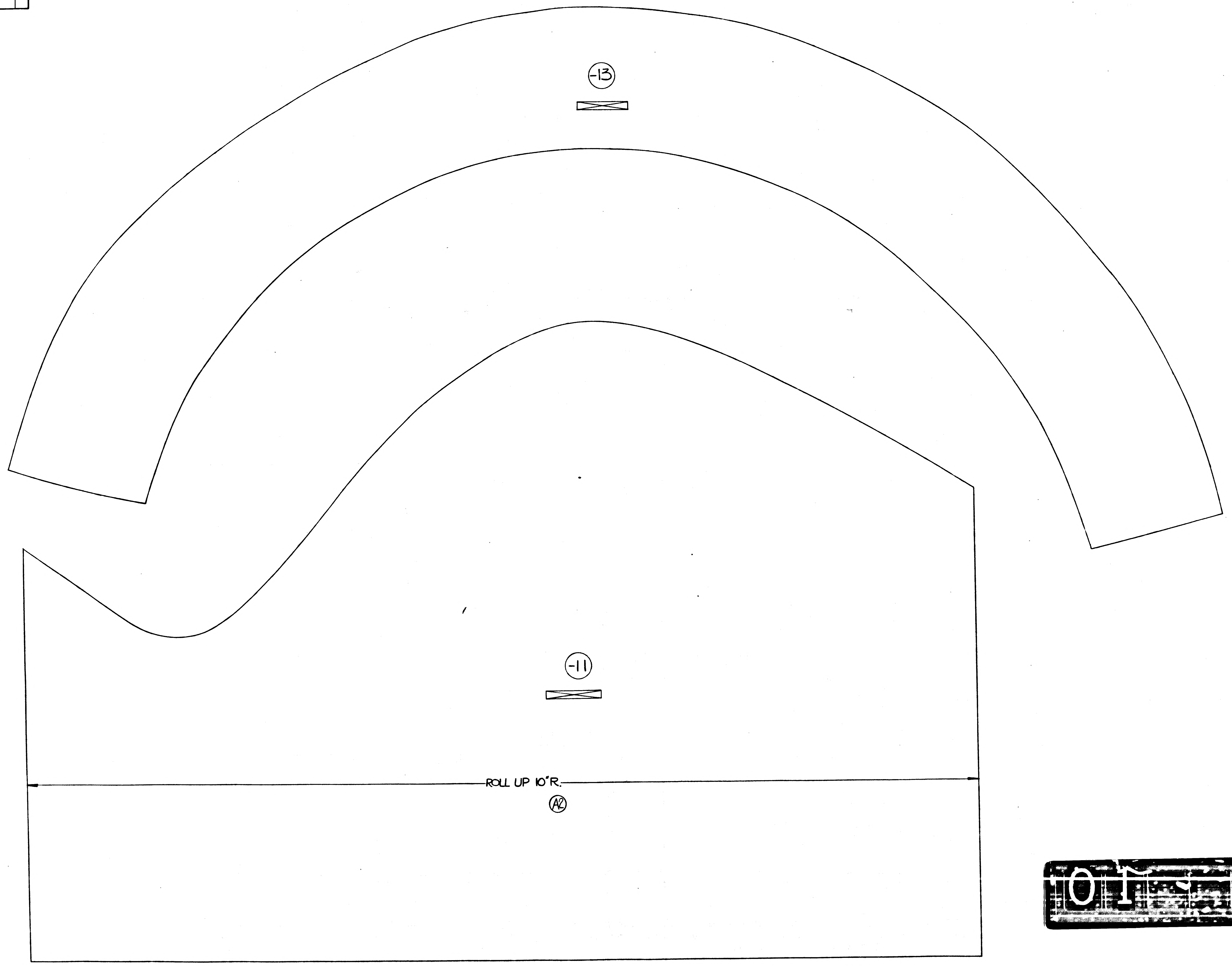
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

OVERLAY OK
5/16/05

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FINAL SIZE FOR -11 & -13 SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATES.



NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-18607	A
SCALE FULL		SHEET 10	

LDW280-18607 A

LDW280-18607 A

LDW280-18607

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53672	LM-3(33)	8 EA
PART NO. LDW280-18607-11 & -13		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	2.00		3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. V(001)

207 MP-16-5/13/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH P

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3148

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY R. LUNDSTEN

THERMO 5/17/68

LAYOUT BY TAMRES

CHECKED BY 5-16-68

GP LEADER 5-16-68

VEH DES INT 5/17/68

STRUCTURES 5/17/68

STRUCTURES for FEB

WEIGHTS

PROJ ENGR 5/17/68

REL GROUP 5-17-68

Ⓔ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE - UPPER
OUTRIGGER BLANKET

SIZE B

CODE IDENT NO. 26512

LDW280-18607 ⊖

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-66

CDR 5-17-68

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18607-13	E	STIFFENER	AL ALLOY SH	QQ-A-250/5	ALCLAD 2024-T3	.010 x 17 x 36	NONE	76	
								LDW280-18607-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/5	ALCLAD 2024-T3	.010 x 19 x 28	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18607
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18607
EO NO. A1
CONTROL INFO NO. LDW280B3835

IN MOD BLOCK
FOR -11 & -13 (8 EA REQD/MOD) N/A LDW 280-53672
ADD EFF. LM-4(34) THRU LM-15 (45)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	J	LCD 3148 (PKG 1) (5)

REASON FOR EO: INSUFFICIENT VENTING

DESCRIPTION OF EO: FOR -11 & -13 (8 EA REQD/MOD) ADDED LM-4(34) THRU LM-15 (45)

GAEC EO RELEASE: JK 6/17/68

MODEL	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-4(34) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD — REWORK — SCRAP

APPROVED BY					WB				
DATE	6/15/68	6/15/68		6-15-68	6/15/68		6/15/68	6-17-68
P	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STIFFENER D/SUPR OUTRIGGER BLANKET

DRAWING NO. LDW280-18607

EO NO. A1

CDR 6/21/68 ISSUED BY V.A. CHRISTINA / P. THORJUSEN SECTION VDI X1724 X1153 GROUP NO. 335 PL 25/29

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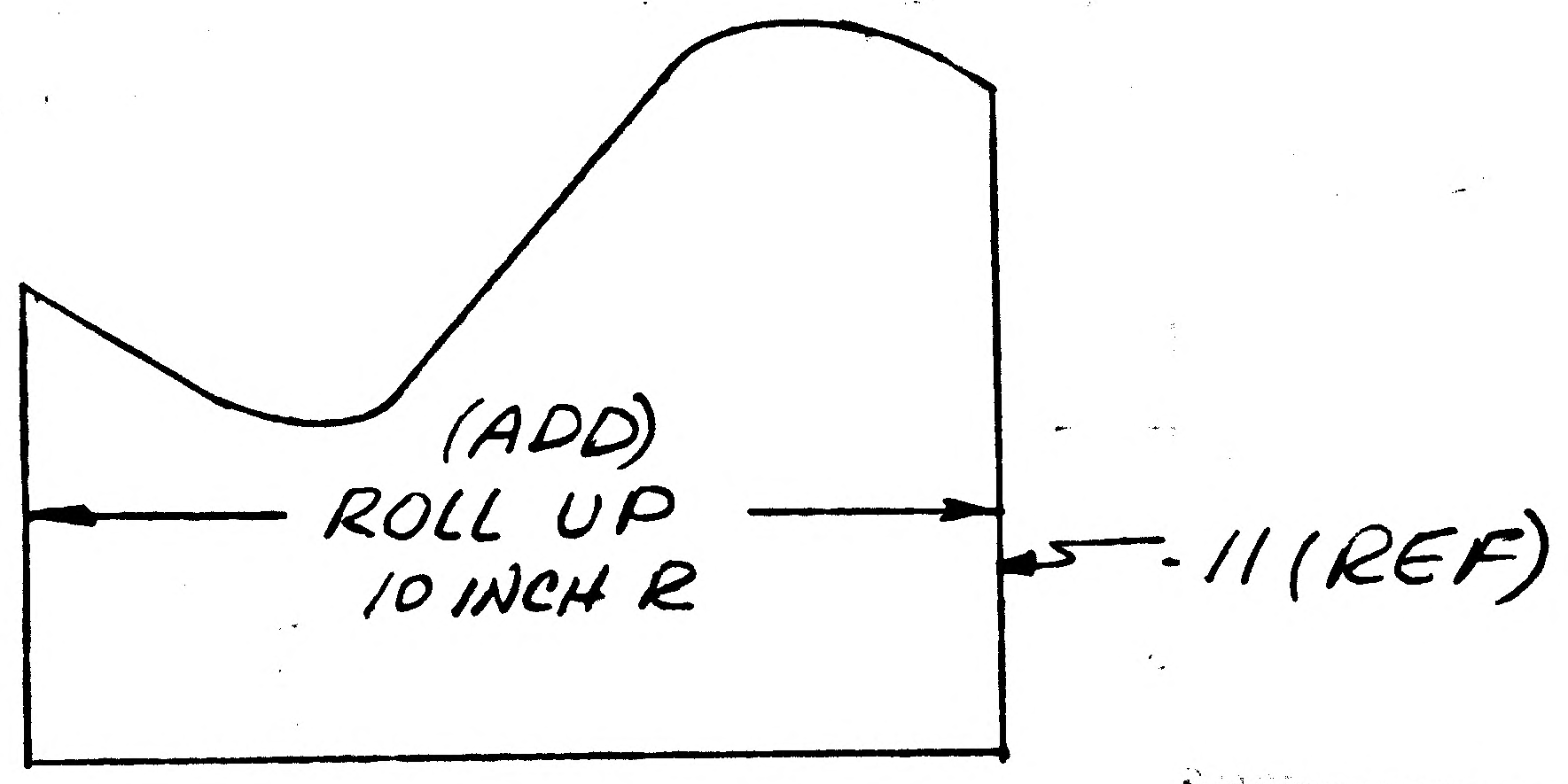
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18607 | EO NO. A2
CONTROL INFO NO. LDW280B4076



LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3148 PKG 1 LCD 2899 PKG 1 ⑤

REASON FOR EO: TO FACILITATE INSTALLATION

DESCRIPTION OF EO: FOR -11, ADDED ROLL UP 10 INCH R

GB GAEC C EO RELEASE: HF 7/22/68

MODEL	EFFECTIVITY E1 ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LFM 155	LM-3(33)	
	LM-3 (33)	THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jap				WJH	ESG PROJ	Jap	Both
DATE	7/3/68	7/10/68		7/2/68	7/10/68	KSC 7-22-68	7/10/68	7-22-68
P	VD1	~~STRUCT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY: C

DRAWING TITLE: STIFFENER ~ D/S ~ UPPER OUTRIGGER BLANKET

DRAWING NO.: LDW280-18607

EO NO.: A2

CDR 070368

ISSUED BY S TAMRES/P. THORJUSEN x1153 SECTION VD1 GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18607		EO NO. A3
CONTROL INFO NO. LDW280B4479		

THIS IS A REVISION OF E.O. A1

IN EFF. BLOCK ADD LFM 155 LM-3 (33)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2899 (PSG 1) (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC 'C' EO RELEASE
INSUFFICIENT VENTING	REF E.O. A1 ADDED LFM155 LM-3(33)	JK 7/29/68

MODEL	~~PROCURING ACTIVITY~~ NO. E1	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LFM155	LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	7/22/68			7/20/68	7/22/68		7/22/68	7/23/68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

Approved by: PSt (group leader), CL (stress group), Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER D/S UPR OUTRIGGER BLANKET	LDW280-18607	A3

CDR 7/29/68
ISSUED BY V.A CHRISTINA / P. THORJUSEN SECTION VDI X1392 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18607
EO NO. A4
CONTROL INFO NO. LM-2-4889

THIS EO CANCELS EO A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 2899

REASON FOR EO: LFM-155 LM-3(33) EFF NOT REQ'D

DESCRIPTION OF EO: THIS E.O. CANCELS E.O. A3

GAEC EO RELEASE: VK ②

MODEL	~~PRODUCING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-155	LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -11 & -13

APPROVED BY							
DATE	8/6/68				8-6-68	8/6/68	8/6/68 8-10-68
	VOI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~CONT~~

PRIORITY: C
DRAWING TITLE: STIFFENER D/S UPR OUTRIG BLANKET
DRAWING NO.: LDW-280-18607
EO NO.: A4

ISSUED BY: LIAISON John J Blase X3604 SECTION: VDI GROUP NO.: 335 PL 25

01

NAS 9-1100

ENG 12.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18607 | EO NO. A5
CONTROL INFO NO. LDW280B4958

IN M/B FOR -11&13 ADD EFF FOR LTA-8(18), LFM 126
N/A LDW280-28672 (8 EA REQ'D)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 7021-33 PKG 5

REASON FOR EO: INSUFFICENT VENTING

DESCRIPTION OF EO: IN M/B FOR -11&-13 ADDED EFF FOR LTA-8(18)

(5)
GAEC IC EO RELEASE: JK 8/15/68

MODEL	EFFECTIVITY E1 ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LT.A-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JHS	MMB		RJT	NM		JP	
✓		Δ		DATE	7/30	7/31/68		7-30-68	7/31/68		7/31/68	8-19
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	THERM ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STIFFENER ~~D/S~~ - UPPER OUTRIGGER BLANKET
DRAWING NO.: LDW280-18607
EO NO.: A5

8/9/68
ISSUED BY W. KAY / THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 10-63

DWG. NO. LEO 280		EO NO. 1088	
CONTROL INFO NO. LDW280 34985			

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED
ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1 ✓
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1 ✓
LDW280-18196-13		6		
LDW280-18196-14		6		
LDW280-18197-11		6		B2 ✓
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1 ✓
LDW280-18198-17		6		
LDW280-18198-19		6		
LDW280-18199-11		6		B1 ✓
LDW280-18200-11		12		B1 ✓
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10 ✓
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6 ✓
LDW280-18607-13		6		B6
LDW280-53584-51		3		
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075 PKG 4 SHT 2 CCA 536		(5) GAEC EO RELEASE (2) C
REASON FOR EO: SHIELDING ON OUTRIGGER REQ'D		DESCRIPTION OF EO: FOR * ADDED TM-5/R (65) EFFECTIVITY			

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				REVISE DWG ✓ / RECORD EO	NOT REQD (REWORK / SCRAP)	DATE 8/8/68 VDI		8-3-68	NM 8-6-68			AC 8-15-68
LM		TM-5/R (65)		PRIORITY C	DRAWING TITLE: NOTED			DRAWING NO. LEO 280				EO NO. 1088

CDR 081468
ISSUED BY MARZELLA 87222. GROUP VDI (335) PLT 25

010
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1157
CONTROL INFO NO. LDW280B5585

REVISE N/A AS SHOWN

DWG NO *	N/A **	WAS ***	EFF	CHANGE LTR
LDW280-28583-9-104-11	LDW280-56553	LDW280-54553	LM-6(36) THRU LM-15(45)	C1 ✓
LDW280-54600-1-1	LDW280-56553	LDW280-54553	LM-6(36) THRU LM-15(45)	A3 ✓
LDW280-53584-51 THRU-54	LDW280-56672	LDW280-53672	LM-6(36) THRU LM-15(45)	B8 ✓
LDW280-18607-118-13	LDW280-56672	LDW280-53672	LM-6(36) THRU LM-15(45)	A7 ✓
	FOR TITLE	SEE DWG		

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3179 PKG 9

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATES

DESCRIPTION OF EO: FOR * N/A ** WAS ***

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

APPROVED BY								
DATE	10/14/68	10/14/68		10/14/68			10/15/68	10-16-68
	YDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280-
EO NO.: 1157

CDR110168
ISSUED BY G. ZEMAN / P. THORJUSEN
SECTION VDI
GROUP NO. 335
PL 25

Q-1
NAS 9-1100

ENG 33.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1291	
CONTROL INFO NO. LDW280B7083			

IN M/B FOR DASH NUMBERS* LISTED BELOW, CHANGED N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15(45).

DRAWING NO.	DASH NO. *	N/A WAS	N/A IS	CHG LETTER
LDW280M17641	-3-1	LDW280-56664	LDW280-58664	A8
M17862	-49&-57	-56599	-58599	B9
M17862	-55	-56648	-58648	
M17990	-11	-56599	-58599	A7
M17990	-11	-56648	-58648	
P18081	-15	-56666	-58666	B1
-18607	-11&-13	-56672	-58672	A8
-53584	-67,68,-69,-70,-71&-72	-56672	-58672	C1
-56504	-1&-5	-56659	-58659	A3
-56605	-1	-56558	-58558	A2
-56733	-1	-56664	-58664	A2
-56748	-1	-56666	-58666	A2
-56758	-1&-3	-56558	-58558	A1
-56770	-1	-56651	-58651	A2
-56806	-1	-56517	-58817	A1
LDW280-66505	-133,-155&-157	LDW280-56561	LDW280-58561	C5

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG [✓] LCD 3197 CCA 1278 PKG 50 ECP A062

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: JK 2/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQD

APPROVED BY	JaP	MR		P&T	WJH		JaP	JM
DATE	2/13/69	2/17/69		2/12/69	2/18/69		2/17/69	2-27-69
	V.D.I.	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO NO.: 1291

CDR030369
ISSUED BY W. KAY x87222/D. SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18594	A2	SEE DWG
-18595	A3	
-18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	[illegible]			4-2-69	[illegible]	4/9/69	5/6/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1441

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

201

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1558
CONTROL INFO NO. LDW 280B 8121

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW 280-1____	SEE DWG	
✓ -18586		A2
✓ 590		A5
✓ 592		A4
✓ 593		B2
✓ 594		A3
✓ 595		A4
✓ 598		A4
✓ 601		A5
✓ LDW 280-18607	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 38 & 39 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

Ⓡ GAEC EO RELEASE: Salh 8-13-69; JK 8/15/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY	PJF				M		Bauman
				DATE	7-29-69			7/29/69	8-2-69		8/2/69 8-15-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~ASST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1558

8-29-69
ISSUED BY G. HANSMANN X87222 (ml) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1740
CONTROL INFO NO. LDW280B8723

FOR THE DRAWINGS LISTED BELOW REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
✓ LDW280-66512-1-1	LDW280-66510	SEE DWG	A5
-P18587 -19 ✓ -P18587-11 -P18587-13	-66510 -66511 -66512 ✓		A7
✓ -18201-13 & -21	-66511		B7
✓ -18684-11, -13, -15, -17 & -19	-66511		B3
✓ -18685-11, -13, -15, -17 & -19	-66511		B3
✓ -18686-11, -13, -15 & -17	-66512		B3
✓ -18687-11, -13 & -15	-66512		B3
✓ LDW280-18667-11 & -13	LDW280-58672	SEE DWG	B3

* APPLICABLE DASH NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG92 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM -*

GAEC EO RELEASE: JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY								
DATE	—	11/2/69		10-20-69			10/20/69	
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1740

CDR 110369

ISSUED BY D. SHAPIRO / P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18608

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54796	TM5/2(65)	3
LM	LDW280-54796	DVT (70)	3
		LM-15(45)	3
		LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
		LM-10(40)	3
		LM-9(39)	3
		LM-8(38)	3
		LM-7(37)	3
		LM-6(36)	3
LM	LDW280-54796	LM-5(35)	3

PART NO. LDW280-18608-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54796	TM5/2(65)	2
LM	LDW280-54796	DVT (70)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
LM	LDW280-54796	LM-5(35)	2

PART NO. LDW280-18608-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54796	TM5/2(65)	1
		DVT (70)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM	LDW280-54796	LM-5(35)	1

PART NO. LDW280-18608-11

WORK PKG. FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00			2.00		3.00		
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

± 1/32 - ±.020 - ± 1/2°

B ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

~~LCD 1433 CCA 586~~

~~LCD 3075 CCA 586~~

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY R. LAMBERT 5-22-68

LAYOUT BY G. CHAN 5-20-68

CHECKED BY JOHN BELL 5/23/68

GR. LEADER 6-17-68

VEH. DES. INT. 6/18/68

STRUCTURES 6/20/68

STRUCTURES FEB 6/20/68

WEIGHTS

PROJ ENGR

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DESCENT STAGE- SCIENTIFIC EQUIPMENT BAY
BOOM RETRACTION STRAP-RETAINER

SIZE B

CODE IDENT NO. 26512

LDW280-18608

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6/7/68

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18608-15	E	SPRING	HI-CARBON STL	QQ-W-470	MUSICWIRE	.041 DIA x 4	NOTE 4	NOTE 3	
								LDW280-18608-13	E	SPRING	CRES SH	MIL-S-25043	17-7 PH COND TH1050	.010 x 2 x 4	NOTE 2	NONE	
								LDW280-18608-11	E	SPRING	CRES SH	MIL-S-25043	17-7 PH COND TH1050	.012 x 2 x 4	NOTE 2	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18608

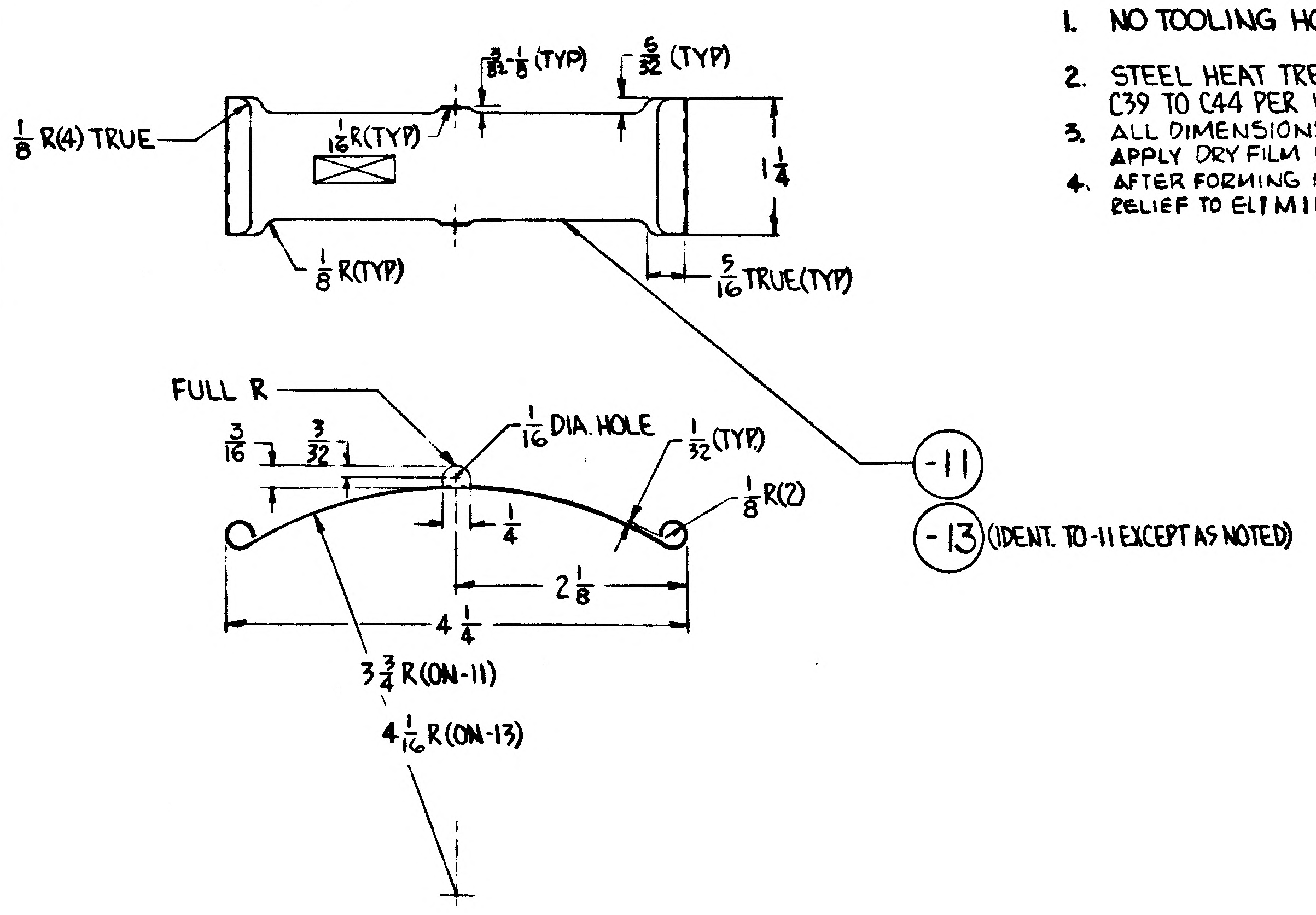
SCALE NONE | SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100

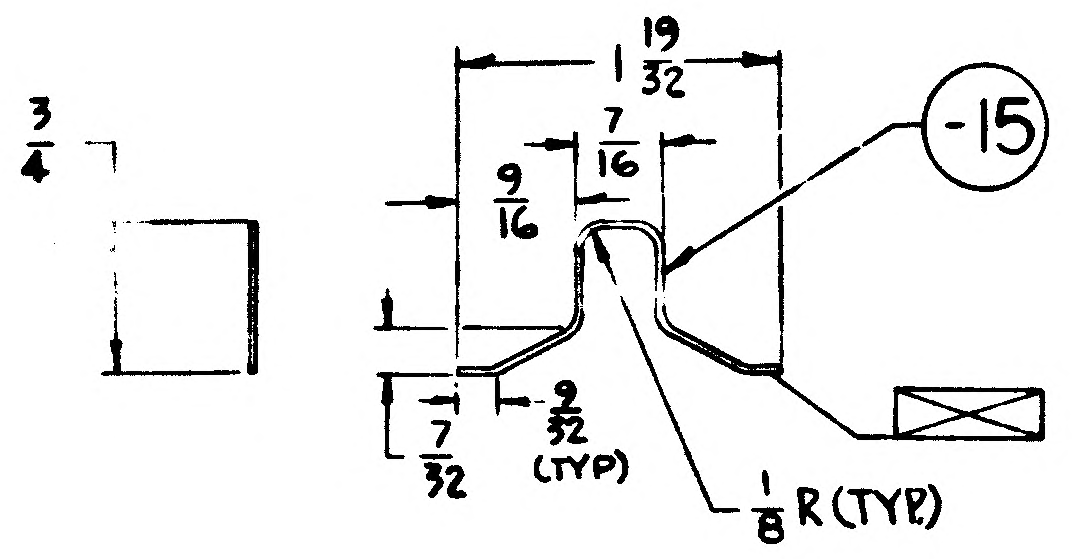
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE ~~BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



1/8 R(4) TRUE
1/16 R(TYP)
3/32-1/8 (TYP)
5/32 (TYP)
1 1/4
1/8 R(TYP)
5/16 TRUE(TYP)
FULL R
3/16
3/32
1/16 DIA. HOLE
1/32 (TYP)
1/8 R(2)
1/4
2 1/8
4 1/4
3 3/4 R(ON-11)
4 1/16 R(ON-13)
-11
-13 (IDENT. TO -11 EXCEPT AS NOTED)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. STEEL HEAT TREAT 180,000 P[illegible] ROCKWELL C39 TO C44 PER LSP-14-5102
3. ALL DIMENSIONS SHOWN ARE BEFORE DRY FILM LUBE. APPLY DRY FILM LUBRICANT PER LSP 14-10300 TYPE I.
4. AFTER FORMING H.T. TO 325-375°F FOR 1 HR FOR STRESS RELIEF TO ELIMINATE COLD BEND STRESSES.



3/4
1 19/32
9/16
7/16
-15
7/32
9/32 (TYP)
1/8 R (TYP)

0 1

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18608

SCALE FULL SHEET 3.00

LDW280-18610

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5(65)	4
		DESIG. VERIF. TEST (70)	4
		LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
LM	LDW280-54575	LM-4(34)	4

PART NO. LDW280-18610-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5(65)	1 EA
		DESIG. VERIF. TEST (70)	
		LM-15(45)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
		LM-5(35)	
LM	LDW280-54575	LM-4(34)	1 EA

PART NO. LDW280-18610-11 & -13

WORK PKG FUNCTION 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO	
LAST DASH NO. USED	-15	PRIM NO.	VK(001)
		215	MP-16 6/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .010 ± 1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433, LCD 3075

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. ENGEL 6-8-68	RELIABILITY	
LAYOUT BY	MARZELLA 6-8		
CHECKED BY	N. BERNSTEIN 6-8-68		
GR LEADER	6-10-68		
VEH DES INT	J. Pusateri 6/10		
STRUCT	6/10/68	PROJ ENGR	J. Pusateri 6/10/68
STRUCT	6/11/68	REL GROUP	J. Marsh 6/11/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-SCIENTIFIC EQUIPMENT BAY
STIFFENER - TOP DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18610
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

(CCA 586) ✓

CDR 6-12-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18610-15	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075-T6	.020 x 2 x 5	NONE	88	
		LDW280-18610-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075-T6	.020 x 3 x 25	NONE	88	
		LDW280-18610-11	E	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.016 x 5 x 25	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18610

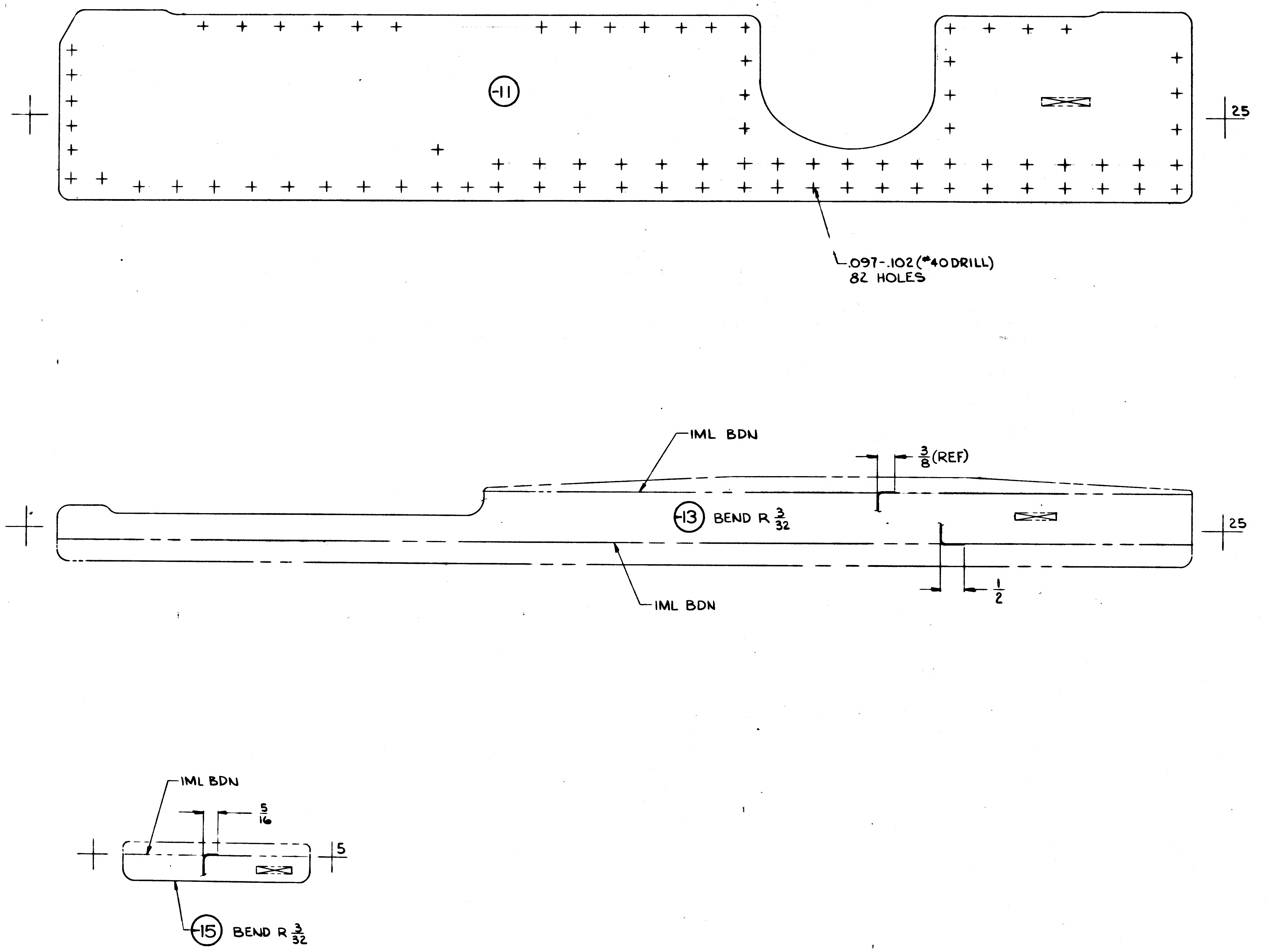
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

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NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	F	26512	LDW280-18610
	SCALE		SHEET 3.00

LDW280-18610

ENG 73-5 6-64

2 FOR PHOTO REPRODUCTION 1

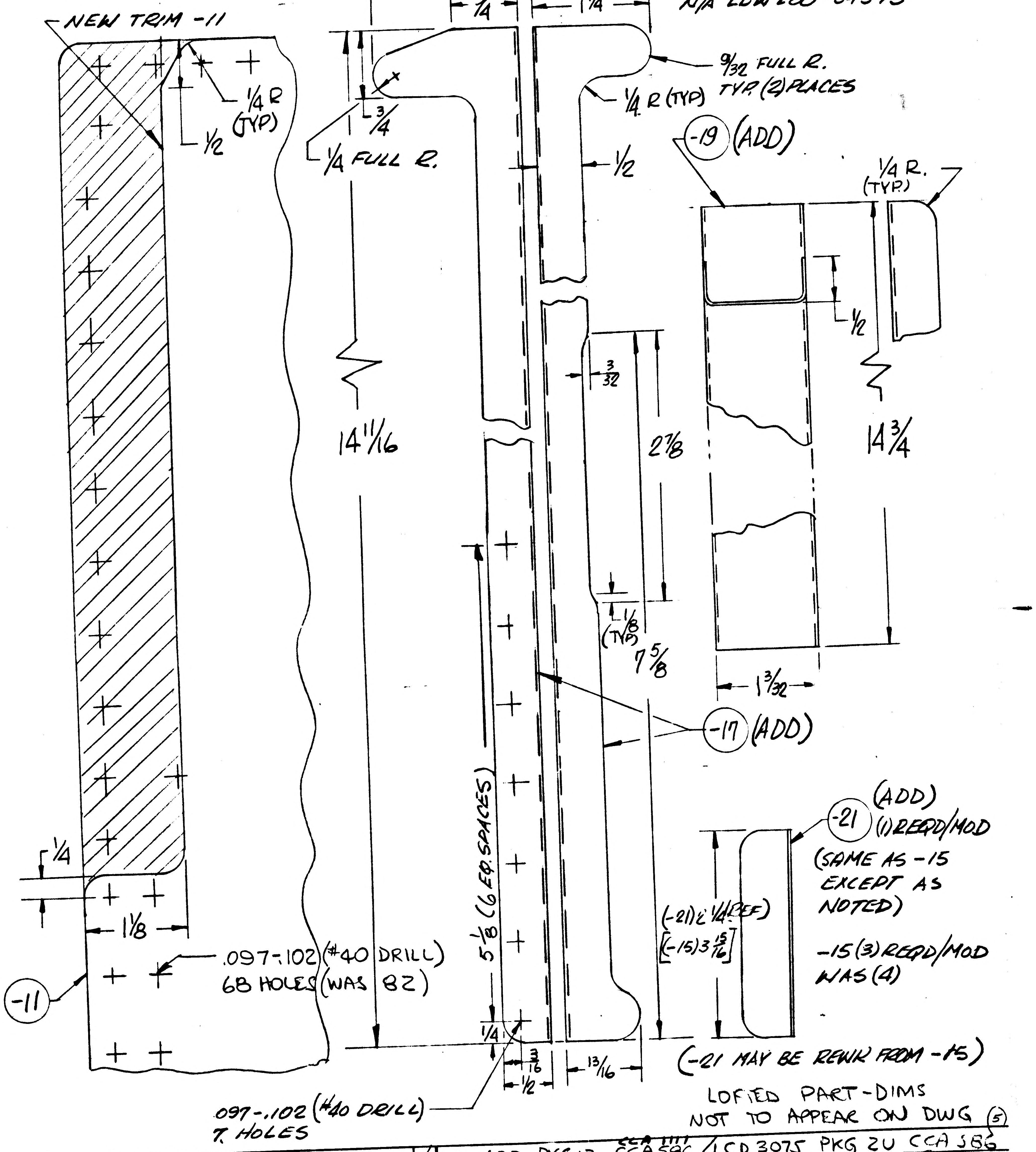
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18610 EO NO. A1
CONTROL INFO NO. LDW280B3906 ✓

ENG 32.2 REV 3-65

REMOVE -13
ON -11, REVISE TRIM AS SHN.

FOR -17 & -19: .020, AL. ALLOY SH, 7075-T6, QQ-A-250/12,
PROCESS-NONE, FINISH #88,
(1) REQD/MOD, B.R. 3/32
N/A LDW280-54575


NEW TRIM -11
1/4 R (TYP)
1/2
1/4
1 1/8
-11
.097-.102 (#40 DRILL)
68 HOLES (WAS 82)
1 5/8
3/4
3/4
1/4 FULL R.
14 11/16
5 1/8 (6 EQ. SPACES)
1/4
3/16
1/2
.097-.102 (#40 DRILL)
7. HOLES
1 1/4
9/32 FULL R.
TYP. (2) PLACES
1/4 R (TYP)
1/2
3/32
2 7/8
1/8 (TYP)
7 5/8
13/16
-17 (ADD)
-19 (ADD)
1/4 R. (TYP)
1/2
14 3/4
1 3/32
-21 (ADD)
(1) REQD/MOD
(SAME AS -15 EXCEPT AS NOTED)
-15 (3) REQD/MOD WAS (4)
(-21) 2 1/4 (REF)
[-15) 3 15/16]
(-21 MAY BE REWK FROM -15)
LOFTED PART-DIMS
NOT TO APPEAR ON DWG (5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1433 PKG 13 CCA 586 (CCA 1111) / LCD 3075 PKG 20 CCA 586									
REASON FOR EO					DESCRIPTION OF EO									GAEC EO RELEASE	
TO STIFFEN UPPER DECK OF SEQ BAY					REWORKED -11. REMOVED -13. FOR -15 3 PER VEHICLE WAS 4. ADDED -17, -19 & -21									JK 6/14/68	
EFFECTIVITY					DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.		✓		-11	-13	DATE	6/13/68			6-13-68	6/13/68	6/13/68	6-13-68
					REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
LM		LM-4 (34 THRU	LM-15 (45)		PRIORITY	DRAWING TITLE					DRAWING NO.			EO NO.	
LM		DVT (70) &	TM-SR (65)		C	WEB - DESCENT STAGE - TOP DECK SEQ BAY					LDW280-18610			A1	

061368
ISSUED BY TAVARES / P THORJUSEN   SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

RELEASED BY LIAISON

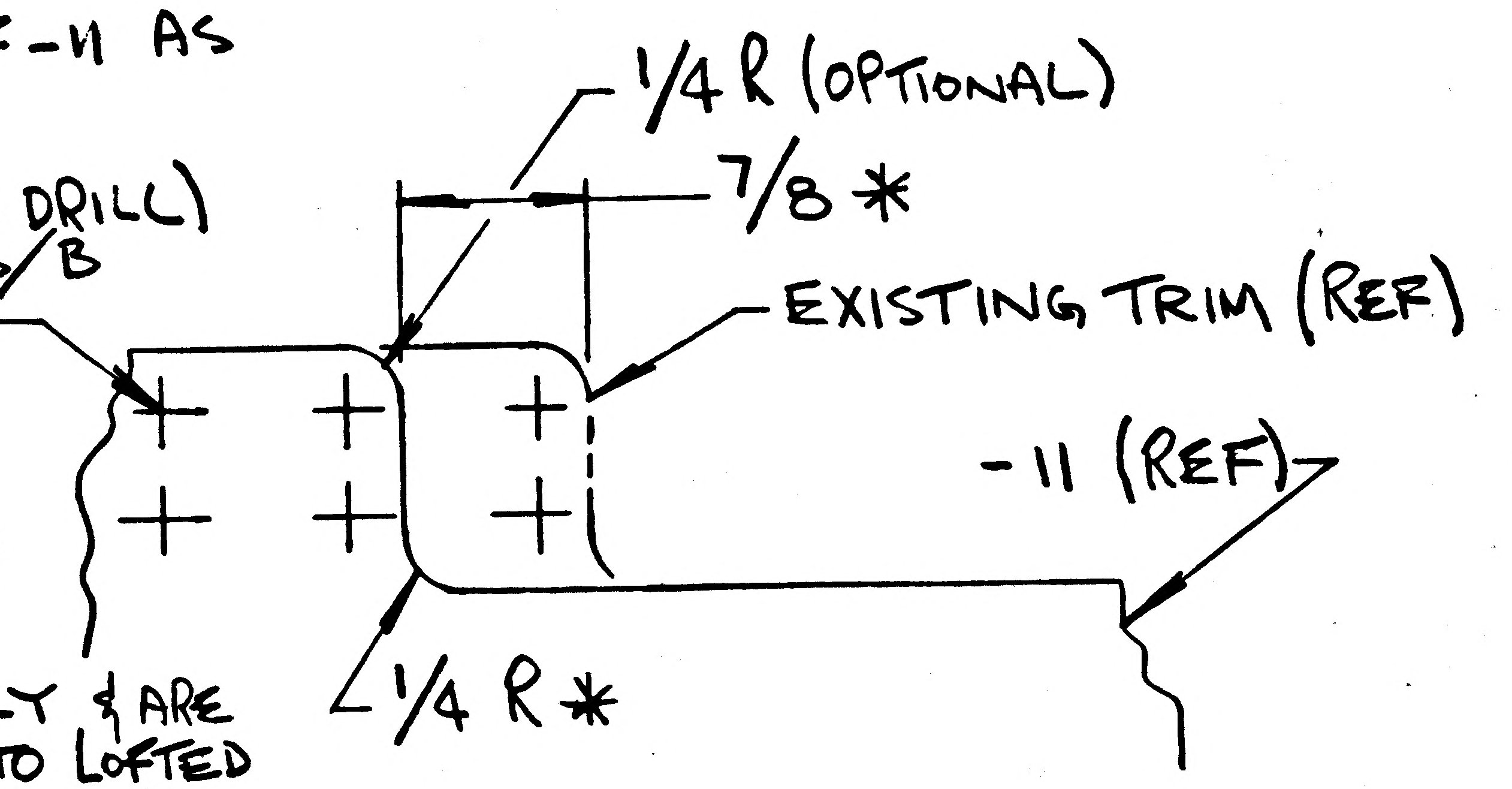
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18610
EO NO. A2
CONTROL INFO NO. LM-5-20292

THIS IS A REVISION OF EO A1

REVISE TRIM OF -19, DIM. 14 3/4 S/B 13 7/8.
ADD -15-1, SAME AS -15 EXCEPT LENGTH 3 15/16 (REF) S/B 2 13/16, N/A LDW280-54575, 1 REQD PER MODULE.
REVISE TRIM OF -11 AS SHOWN.

".097-.102 (#40 DRILL) "68 HOLES" S/B "66 HOLES"



NOTE: -15 MAY BE REWORKED INTO -15-1.
DIM.S MARKED * ARE FOR LAYOUT ONLY & ARE NOT TO BE ADDED TO LOFTED DWG.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1433 CCA 586, 1111 LCD 3075 CCA 586 (5)

REASON FOR EO: TO STIFFEN SEQ BAY UPPER DECK

DESCRIPTION OF EO: REF EO A1
REVISED TRIM OF -11 & -19. ON -11 ".097-.102... 66 HOLES" WAS "68 HOLES". ADDED -15-1.

GAEC EO RELEASE (2) P/C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	THRU
		LM-15 (45)	DVT (70)
		TM-5/R	(65)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JAP				—	J.M.		JAP
DATE	8/20/68				—	8-12-68	8-10-68	8/20/68
	VDI	~~[illegible]~~						

8-14-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB ~ DESCENT STAGE ~ SCIENTIFIC EQUIP. BAY ~ STIFFENER ~ TOP DECK	LDW280-18610	A2

ISSUED BY LIAISON/ART WILSON X86755 8/10/68 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERIN ORDER

ENG 22.1 REV 3-68

DWG. NO. LEO 280
EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18594	A2	SEE DWG
-18595	A3	
-18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 5/6/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/6/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1441

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 EO NO. 1555
CONTROL INFO NO. LDW280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18610	SEE DWG	A4
611		A3
612		A3
613		A4
614		A3
615		A2
620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

	APPROVED BY							
DATE	7-29-69			7/29/69	8-2-69			8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~ REL

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1630
CONTROL INFO NO. LDW280B	8454	

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW280 - 18283	SEE DRAWING	LDW280-54575	B3
-18487		-54575	A6
-18610		-54575	A5
-18611		-54575	A4
-18612		-54575	A4
-18613		-54575	A5
M17266		-54575	D3
M 17629		-54575	C2
M 17640		-54575	C3
M 17798		-54575	A7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9+10. (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8/A 8-22-9; K 8/27/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY	PSt						
DATE	8-8-69			8/19/69	8-11-69		8/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-54575	DVT (70)	2
		TM-5R(65)	2
		LM-15(45)	2
		LM-14 (44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10 (40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7 (37)	2
		LM-6 (36)	2
		LM-5(35)	2
LM	LDW 280-54575	LM-4 (34)	2

PART NO. LDW 280-18611-27

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT (70)	1 EA
		TM-5R(65)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35	1 EA
LM	LDW280-54575	LM-4(34)	1 EA

PART NO. LDW 280-18611-29 -31,-33,-35,-37,~~39~~-41-43-45 & -47

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT (70)	1 EA
		TM-5R(65)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA

PART NO. LDW280-18611-11,-13,-15, -17,-19,-21,-23,-25,

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -47

GRUMMAN REL INFO
PRIM NO. 219 · UK(60) · MP-16 · 6/12/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 & 3075

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY P.GARDIANOS 6-7-68
LAYOUT BY J. LANG/MARZELLA
CHECKED BY JOHN BELL 6/10/68
GR LEADER Thorgersen 6-10-68
VEHDES INT 6/10/68
STRUCT 6/11/68
STRUCT 6/12/68
WEIGHTS
RELIABILITY
THERMO
PROJ ENGR J. Gustaven 6/11/68
REL GROUP J. Marsh

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FILLERS
DESCENT STAGE-SCIENTIFIC EQUIP.
UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18611
SCALE NONE
SHEET 1.00 OF 3

NG 77.1 9-64

(CCA 586) O.K.

CDR 061568

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18611-47	E	FILLER	AL ALLOY SH	7075-T6	QQ-A-250/12	.020X1X2	NONE	88	
		-45						.050X1X2	NONE	88	
		43						.093X1X7	NONE	88	
		-41						.125X1X2	NONE	88	
		-39						.070X1X2	NONE	88	
		-37						.070X1X6	NONE	88	
		-35						.024X2X4	NONE	88	
		-33						.070X1X3	NONE	88	
		-31						.032X1X2	NONE	88	
		-29						.063X1X7	NONE	88	
		-27						.070X1X3	NONE	88	
		-25						.063X1X2	NONE	88	
		-23						.032X1X3	NONE	88	
		-21						.032X1X13	NONE	88	
		-19						.050X1X3	NONE	88	
		-17						.093X1X6	NONE	88	
		-15						.045X2X3	NONE	88	
		-13						.093X1X6	NONE	88	
		LDW280-18611-11	E	FILLER	AL ALLOY SH	7075-T6	QQ-A-250/12	.093X1X4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
			88	ANODIZE	LSP-14-9030			

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18611

SCALE NONE

SHEET 2.00

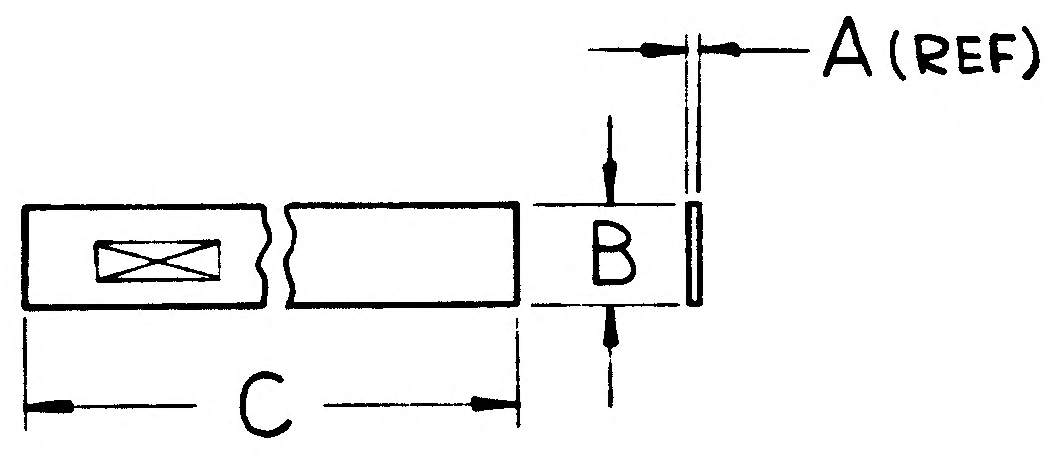
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
R[illegible]R STAMP PART NUMBER AND ALL [illegible] MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

PART NO.	DIM "A" (REF)	DIM. "B"	DIM "C"
LDW280-18611-11	.090	1/2	2 15/16
-13	.090	1/2	4 13/16
-15	.045	1 3/16	2 3/8
-17	.030	1/2	4 5/8
-19	.050	1/2	2 1/8
-21	.032	1/2	11 11/16
-23	.032	1/2	2 3/16
-25	.063	1/2	1 3/16
-27	.071	1/2	1 5/8
-29	.063	1/2	6 5/16
-31	.032	1/2	1 5/16
-33	.071	1/2	2 7/16
-35	.024	1 3/8	2 9/16
-37	.071	1/2	5 3/8
-39	.071	1/2	1"
-41	.125	1/2	1 5/16
-43	.090	1/2	6
-45	.050	1/2	1 1/16
LDW280-18611-47	.020	1/2	1"



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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE C | CODE IDENT NO. 26512 | LDW280-18611

SCALE NONE | SHEET 3.00

LDW280-18611

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18611
EO NO. A1
CONTROL INFO NO. LDW280B3907 ✓

LDW280-18611-19 2/MOD, WAS 1/MOD
REMOVE LDW280-18611-45 (1) & -47 (1).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1433 CCA 586 PKG 13 / LCD 3075 CCA 586 PKG 24 (5)

REASON FOR EO: TO STIFFEN UPPER DECK OF SEQ BAY

DESCRIPTION OF EO: LDW280-18611-19 2/MOD, WAS 1/MOD. REMOVED LDW280-18611-45 (1) & -47 (1)

GAEC EO RELEASE: TC 6/18/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)-LM15(45)	
LM		TM-5R(65) & DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	6/13/68			6-13-68	6/13/68		6/13/68	6-13-68

PRIORITY: C
DRAWING TITLE: FILLERS - DESCENT STAGE - SCIENTIFIC EQUIP UPPER DECK
DRAWING NO. LDW280-18611
EO NO. A1

061368 X1681
ISSUED BY G. CHAN / G. HANSMANN / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1441
CONTROL INFO NO. LDW280B7441

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280 -18594	A2	SEE DWG
-18595	A3	
-18598	A3	
-18601	A4	
-18602	A3	
-18607	B1	
P18609	A1	
-18610	A3	
-18611	A2	
LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: ® JK 5/6/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/4/69			4-2-69	4/4/69		4/9/69	5/6/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1441

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1555
CONTROL INFO NO. LDW 280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18610	SEE DWG	A4
611		A3
612		A3
613		A4
614		A3
615		A2
620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 31 # 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; JK 8/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	REL
APPROVED BY	PSF				N			
DATE	7-29-69			7/29/69	8-2-69		8/1/69	8-15-69
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1630
CONTROL INFO NO. LDW280B 8454

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW280 - 18283	SEE DRAWING	LDW280-54575	B3
-18487		-54575	A6
-18610		-54575	A5
-18611		-54575	A4
-18612		-54575	A4
-18613		-54575	A5
M17266		-54575	D3
M 17629		-54575	C2
M 17640		-54575	C3
M 17798		-54575	A7

DETAIL SPEC REQ ☐ CL. II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9 + 10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8/A 8-22-9, 8/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460).	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D

APPROVED BY	PSA						
DATE	8-8-69			8/4/69	8/12/69		8/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18612

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5R(65)	1EA
LM	LDW280-54575	DVT(70)	1EA
LM	LDW280-54575	LM-15(45)	
		THRU	1EA
LM	LDW280-54575	LM-4(34)	

PART NO. LDW280-18612-11,-13,-15&17

GAEC SCH NO.

WORK PACKAGE FUNCTION 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 VK(001) MP-16 6/11/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD:433, LCD 3075

(CCA 586)

CONTRACT NO. NAS 9 1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	BURTON 6-7-68	RELIABILITY	
LAYOUT BY	MARZELLA 6-6-68		
CHECKED BY	H. BERNSTEIN 6/10/68		
GR LEADER	6-10-68		
VEH DES INT	J. Cusatis 6/10/68		
STRUCT	JGS 6/10/68	PROJ ENGR	J. Cusatis 6/11/68
STRUCT	REB 6/10/68	REL GROUP	L. Marchi
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - SIDE EQUIP - BAY
TOP DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18612

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6-15-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18612-17	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.032 X 2 X 3	NONE	88	
		LDW280-18612-15	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x3x5	NONE	88	
		LDW280-18612-13	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x4x4	NONE	88	
		LDW280-18612-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075-T6	.032x1x4	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18612

SCALE NONE

SHEET 2.00

01

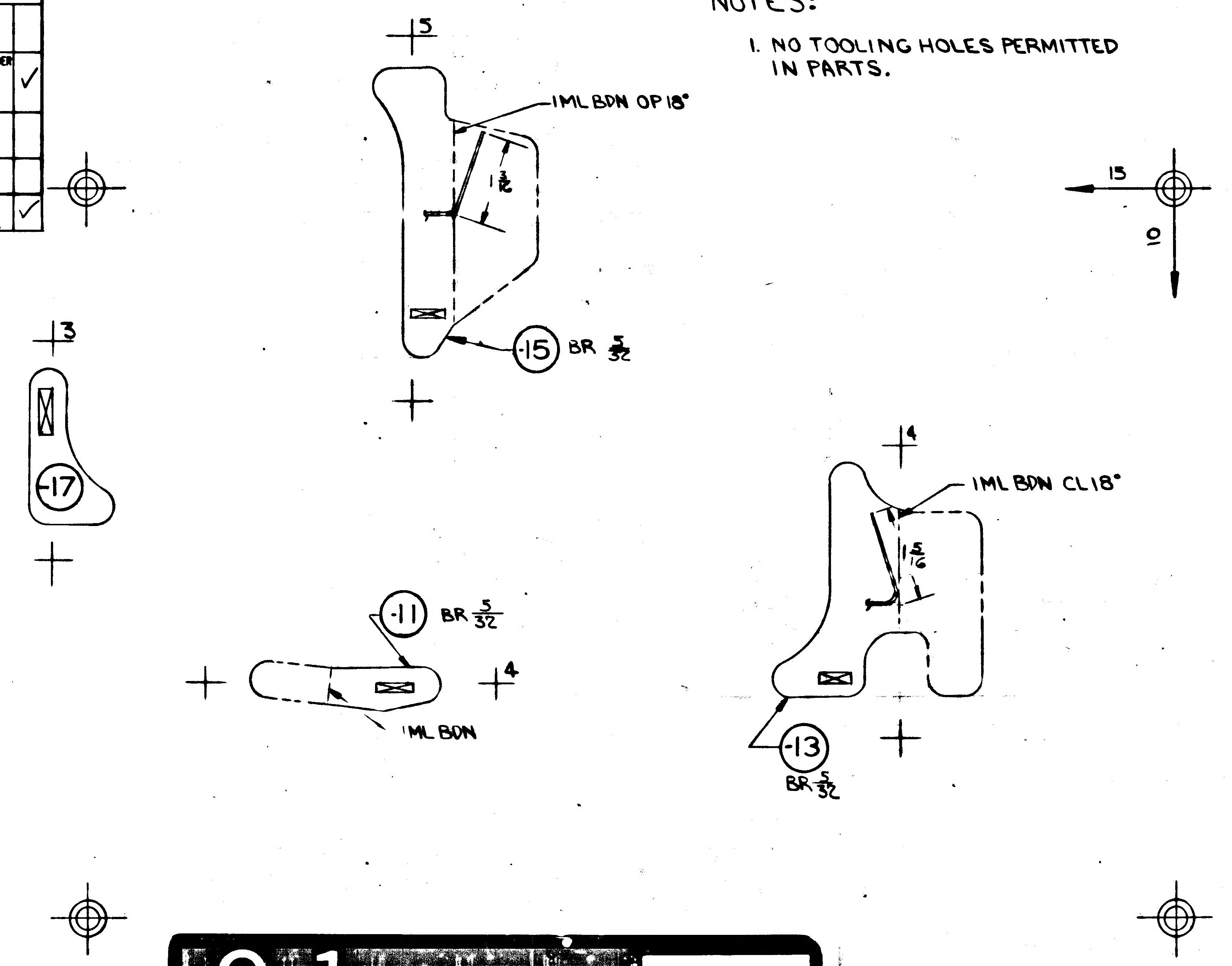
NAS 9-1100

TRAN O.K.
T.V. 6-7-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.



5
IML BDN OP 18°
1 5/16
-15 BR 5/32
15
10
3
-17
4
IML BDN CL 18°
1 5/16
-11 BR 5/32
4
IML BDN
-13 BR 5/32

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18612

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

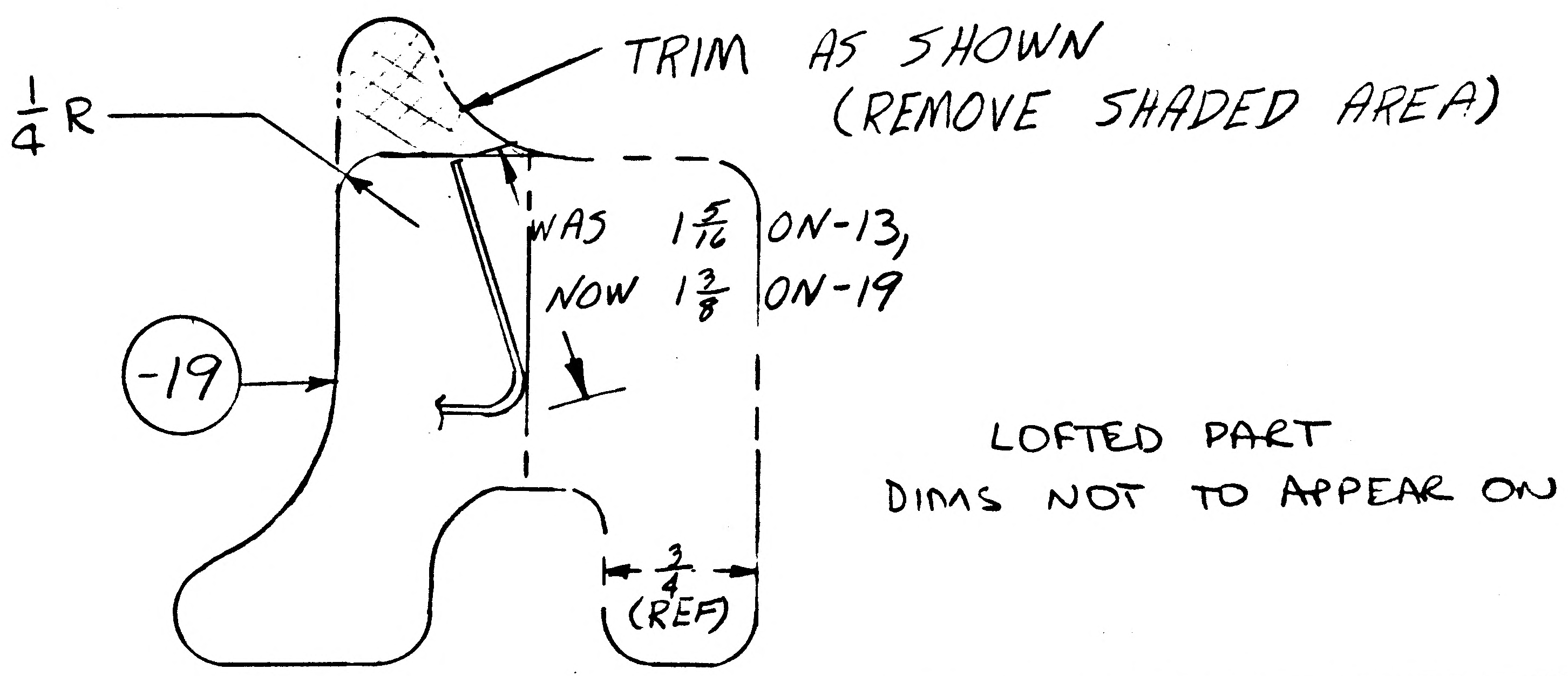
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18612
EO NO. A1
CONTROL INFO NO. LDW280B3908✓

REMOVE -11, -13, & -17

ADD-19 IDENTICAL TO -13 EXCEPT AS NOTED:



LOFTED PART
DIMS NOT TO APPEAR ON DWG

LCD 1433 PK 13 CCA 586 & CCA 1111
LCD 3075 PK 2U CCA 586✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑

REASON FOR EO: TO STIFFEN SEQ. BAY UPPER DECK

DESCRIPTION OF EO: REMOVED -11 -13 & -17
ADDED -19

GAEC EO RELEASE: JK 6/14/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-4 (34)	
LM		THRU LM-15 (45),	
LM		DVT(70) & TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			-11 -13 -17

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY								
DATE	6/13/68			6-13-68	6/13/68		6/13/68	6-13-68

PRIORITY: C
DRAWING TITLE: CLIP D/S SIDE EQUIP-BAY TOP DECK
DRAWING NO.: LDW280-18612
EO NO.: A1

061368
ISSUED BY T. COTTER x 86018 / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG 22.1 REV 3-66

DWG. NO. LEO 280
EO NO. 1441
CONTROL INFO NO. LDW280B .41

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280 -18594	A2	SEE DWG
✓ -18595	A3	↑
✓ -18598	A3	
✓ -18601	A4	
✓ -18602	A3	
✓ -18607	B1	
✓ P18609	A1	
✓ -18610	A3	
✓ -18611	A2	↓
✓ LDW280 -18612	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG 55 PG. 4 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: (R) JK 5/6/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	AGENT
				PBF	W/H			
DATE	4/4/69			4-2-69	4/4/69		4/9/69	5/6/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1441

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1555
CONTROL INFO NO. LDW280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
LDW280-18610	SEE DWG	A4
611		A3
612		A3
613		A4
614		A3
615		A2
620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	REL
DATE	7-29-69			7/29/69	8-2-69		8/1/69	8-15-69
	VDI				N			

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO: LEO 280
EO NO. 1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1630
CONTROL INFO NO. LDW280B 8454

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓ LDW 280 - 18283	SEE DRAWING	LDW280-54575	B3
✓ -18487		-54575	A6
✓ -18610		-54575	A5
✓ -18611		-54575	A4
✓ -18612		-54575	A4
-18613		-54575	A5
M17266		-54575	D3
M 17629		-54575	C2
M 17640		-54575	C3
M 17798		-54575	A7

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 9+10	(5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PBT				WH			
DATE	8-8-69			8/8/69	8/12/69		8/12/69	8/12/69
	VDI							

GAEC EO RELEASE: 8/11 8-22-9 / 8/27/69

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18613

MODEL OF END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	D.V.T (70)	1 EA
		TM-5/R(65)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA
PART NO. LDW280-18613-15,-17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54796	D.V.T (70)	1 EA
		TM-5/R(65)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54796	LM-4(34)	1 EA
PART NO. LDW280-18613-11 & -13		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN RELS INFO		
LAST DASH NO. USED	-19	PRIM NO.	JK(001)	
		207	MP-16	6/11/8

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

G	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 433, LCD 3075	

(CCA586) OK

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	B.REYES 6-8-68	RELIABILITY	
LAYOUT BY	J.TAVARES 6-10-68		
CHECKED BY	Jom Bell 6/8/68		
GR LEADER	G.H. [illegible] 6-10-68 LWH		
VEH DES INT	J. Pivaten 6/10		
STRUCTURES	J [illegible] 6/10/68	PROJ ENGR	J. Pivaten 6/11/68
STRUCTURES	JEB 6/10/68	REL GROUP	L. March 6/11/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ MID SECT. ~ SIDE
EQUIP-BAY ~ TOP DOOR

SIZE	CODE IDENT NO.		
B	26512	LDW280-18613	(-)
SCALE	NONE	SHEET 1.00 OF 3	

CDR 6-12-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18613-19	E	ANGLE	AL ALY SH	QQ-A-250/4	2024-T3	.024 × 2 × 4	NONE	88	
		-17		DOUBLER		QQ-A-250/12	7075-T6	.024 × 3 × 6	NONE		
		-15		DOUBLER		QQ-A-250/12	7075-T6	.024 × 3 × 5	NONE		
		-13		CLIP		QQ-A-250/4	2024-T3	.032 × 2 × 3	NONE		
		LDW280-18613-11	E	ANGLE	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 2 × 7	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18613

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

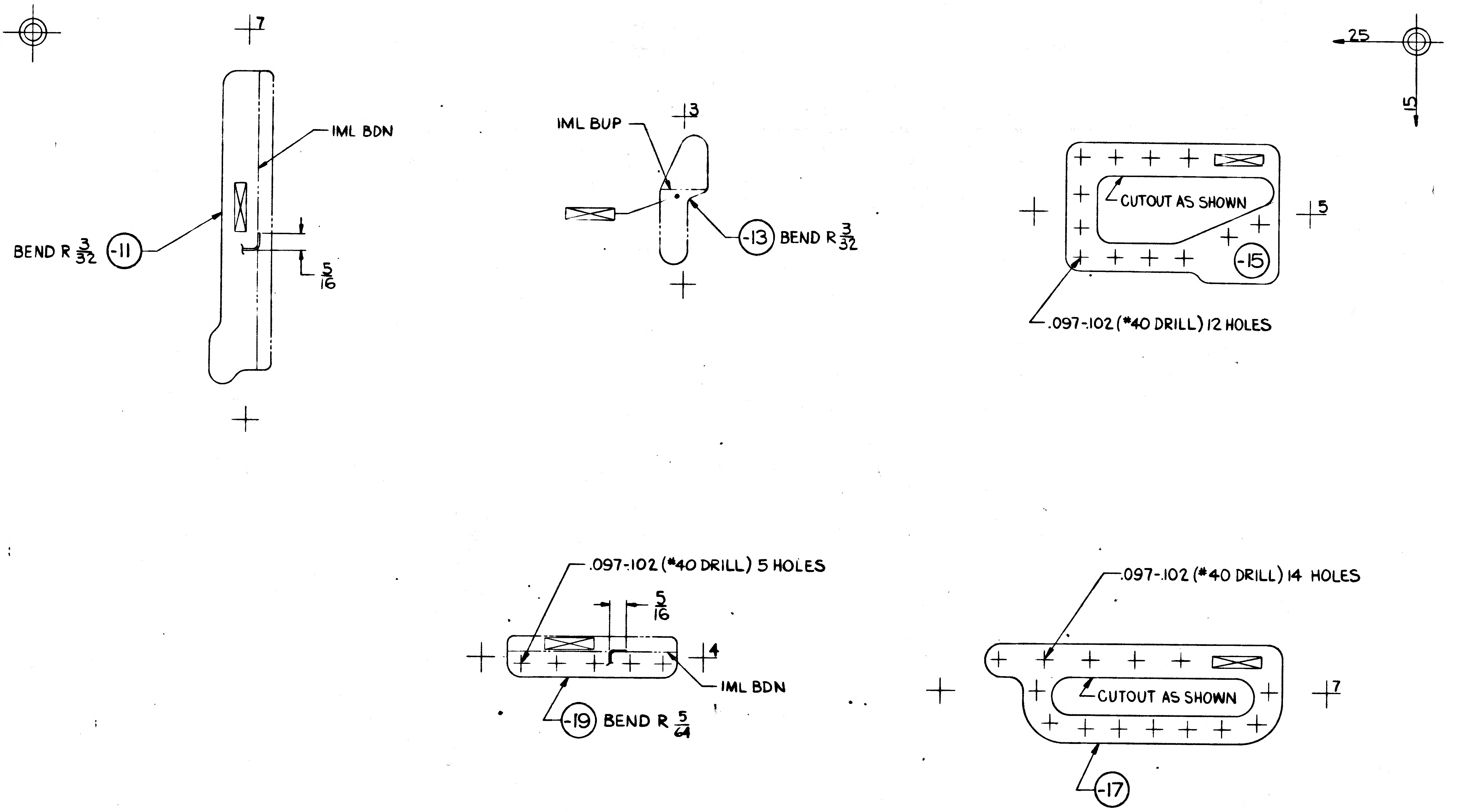
NAS 9-1100

LDW280-18613

TRAM OK
TL 6-8-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCES ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN THESE PARTS


7
IML BDN
BEND R 3/32
-11
5/16
IML BUP
3
-13
BEND R 3/32
25
15
CUTOUT AS SHOWN
5
-15
.097-.102 (#40 DRILL) 12 HOLES
.097-.102 (#40 DRILL) 5 HOLES
5/16
4
IML BDN
-19
BEND R 5/64
.097-.102 (#40 DRILL) 14 HOLES
CUTOUT AS SHOWN
7
-17

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18613

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

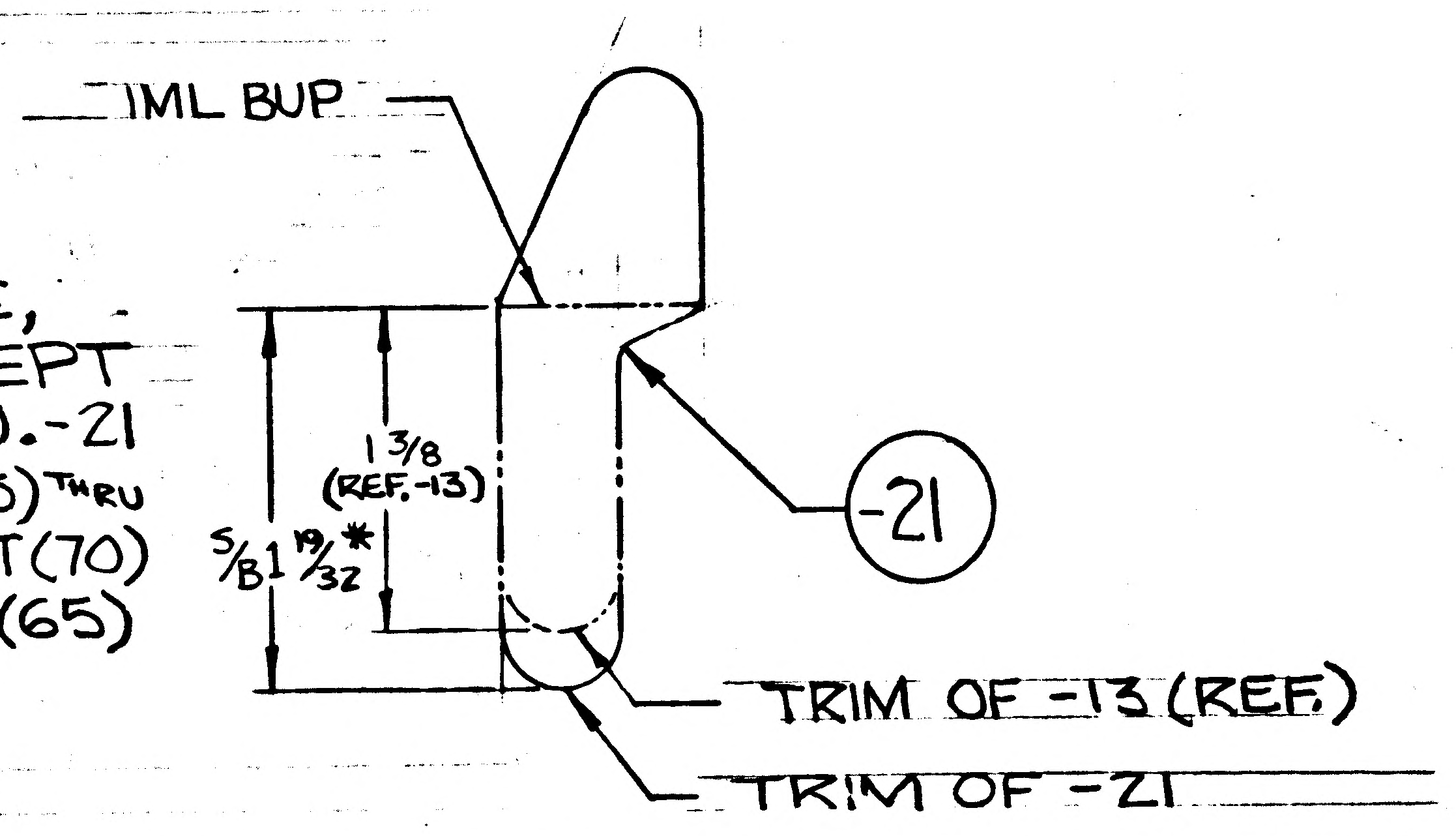
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGI'' RING ORDER

DWG. NO. LDW280-18613
EO NO. A1
CONTROL INFO NO. LDW 280B5602

IN F/D, B/M & M/B:

REMOVE: -13

CREATE: -21 ANGLE, IDENTICAL TO -13 EXCEPT AS SHOWN. -21 EFF. LM-5(35) THRU LM-15(45), DVT(70) AND TM5/R(65)



* "TO BE LOFTED"

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1433, LCD 3075 CCA586 (5)

REASON FOR EO: TO INCREASE EDGE DISTANCE ON NEXT HIGHER ASSY.

DESCRIPTION OF EO: REMOVED: -13
CREATED: -21 EFF. LM-4(34) THRU LM-15(45) DVT(70) & TM5/R

GAEC EO RELEASE: JK 9/30/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	LM-15(45)
LM		DVT(70)	
LM		TM5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -13

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY									
DATE	9-17-68	9/24/68			9-23-68	9/17/68	9/17/68	9/24/68	9-30-68
		VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: ANGLE~DESCENT STAGE-MID SECT. SIDE EQUIPTMENT BAY~TOP DOOR

DRAWING NO. LDW280-18613
EO NO. A1

9/5
ISSUED BY ~~[illegible]~~ GM GREEN X3604 J. TAVARES
SECTION VEH. DES. INT.
GROUP NO. 335
PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1204
CONTROL INF NO. LDW280B 5967

FOR THE FOLLOWING PARTS RESTRICT TO LM-4(34)
(WAS) LM-4(34) THRU LM-15(45), DVT(70) & TM-5/R(65)

DRAWING NO. *	TITLE	N/A NO.	CHANGE NO
LDW280-18613-11	SEE DWG	LDW280-54796	A2 ✓
	↕	↕	
LDW280-54797-3			A7
LDW280-18420-27		LDW280-54796	B1
LDW280P18453-17		LDW280-54797	A5
LDW280P18453-19		LDW280-54797	
LDW280P18453-21	SEE DWG	LDW280-54797	

✓ LCD 3521 ECP C159 PKG 1 PAGE 2 (5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓

GAEC ② EO RELEASE NFE 11/2/68 11/8/68

REASON FOR EO: REDESIGN OF BOOM RETRACTION LANYARD STOWAGE (RFA 18)

DESCRIPTION OF EO: RESTRICTED EFF OF (*) TO LM-4(34), BY REMOVING LM-5(15) THRU LM-15(45), DVT(70) AND TM-5/R(65)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU LM-15(45), DVT(70), TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP *✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/31/68			10/28/68	11/1/68		11/1/68	Bauman 11/8/68

PRIORITY C
DRAWING TITLE: SEE DRAWING
DRAWING NO. LEO 280
EO NO. 1204

10/31/68
ISSUED BY W. KAY x87222/
SECTION V.D.I.
GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-68

DWG. NO. LEO 280
EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614	A2	
-18615	A1	
-18620	A3	
-18627	A1	
-18628	B1	
-18630	A7	
-18631	A1	
-18638	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM *

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1346

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1555
CONTROL INFO NO. LDW 280B 8122		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18610	SEE DWG	A4	
✓ 611		A3	
✓ 612		A3	
✓ 613		A4	
614		A3	
615		A2	
620		A4	
627		A2	
628		B2	
LDW280-18630	SEE DWG	A8	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO	DESCRIPTION OF EO	Ⓐ GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	8-13-69 JK 8/15/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	APPROVED BY								
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK / SCRAP	DATE	7-29-69			7/29/69	8-2-69			8-15-69
				VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~ REL

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1630
CONTROL INFO NO. LDW280B 8454

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
✓ LDW280 - 18283	SEE DRAWING	LDW280-54575	B3
✓ -18487		-54575	A6
✓ -18610		-54575	A5
✓ -18611		-54575	A4
✓ -18612		-54575	A4
✓ -18613		-54575	A5
M17266		-54575	D3
M17629		-54575	C2
M17640		-54575	C3
M17798		-54575	A7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 9+10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8/A 8-22-9; K 8/27/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	PBT						
DATE	8-8-69			8/19/69	8/21/69		8/21/69
	VDI						

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1630

8-27-69
ISSUED BY A. Fuelo X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18614

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	TM-5(65)	1 EA
		DESIGN VARIFICATION(70)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
		LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA

PART NO.	GAEC SCH NO.	
LDW280-18614-11,-13,-15		

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO: PRIM NO. 233 JK(001) MP-16 6/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

G ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3075, LCD 1433

(CCA586) OK

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	DUMITRESKU 6-7-68	RELIABILITY	
LAYOUT BY	TAVARES 6-8-68		
CHECKED BY	WCG 6/8/68		
GR LEADER	6-10-68		
VEH DES INT			
STRUCT	6/11/68	PROJ ENGR	6/11/68
STRUCT	6/11/68	REL GROUP	6-11-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE-SCIENTIFIC
EQUIPMENT BAY, UPPER DECK

SIZE B CODE IDENT NO. 26512 LDW280-18614

SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6-12-68

01

NAS 9-1100

QTY PER ASSEMBLY								CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
									LDW280-18614-15	E	WEB	AL ALLOY SH	QQ-A-250/12	7075	.016 × 5 × 24	T6	88	
									LDW280-18614-13	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 4	T6	88	
									LDW280-18614-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.024 × 5 × 6	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEATTREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18614
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

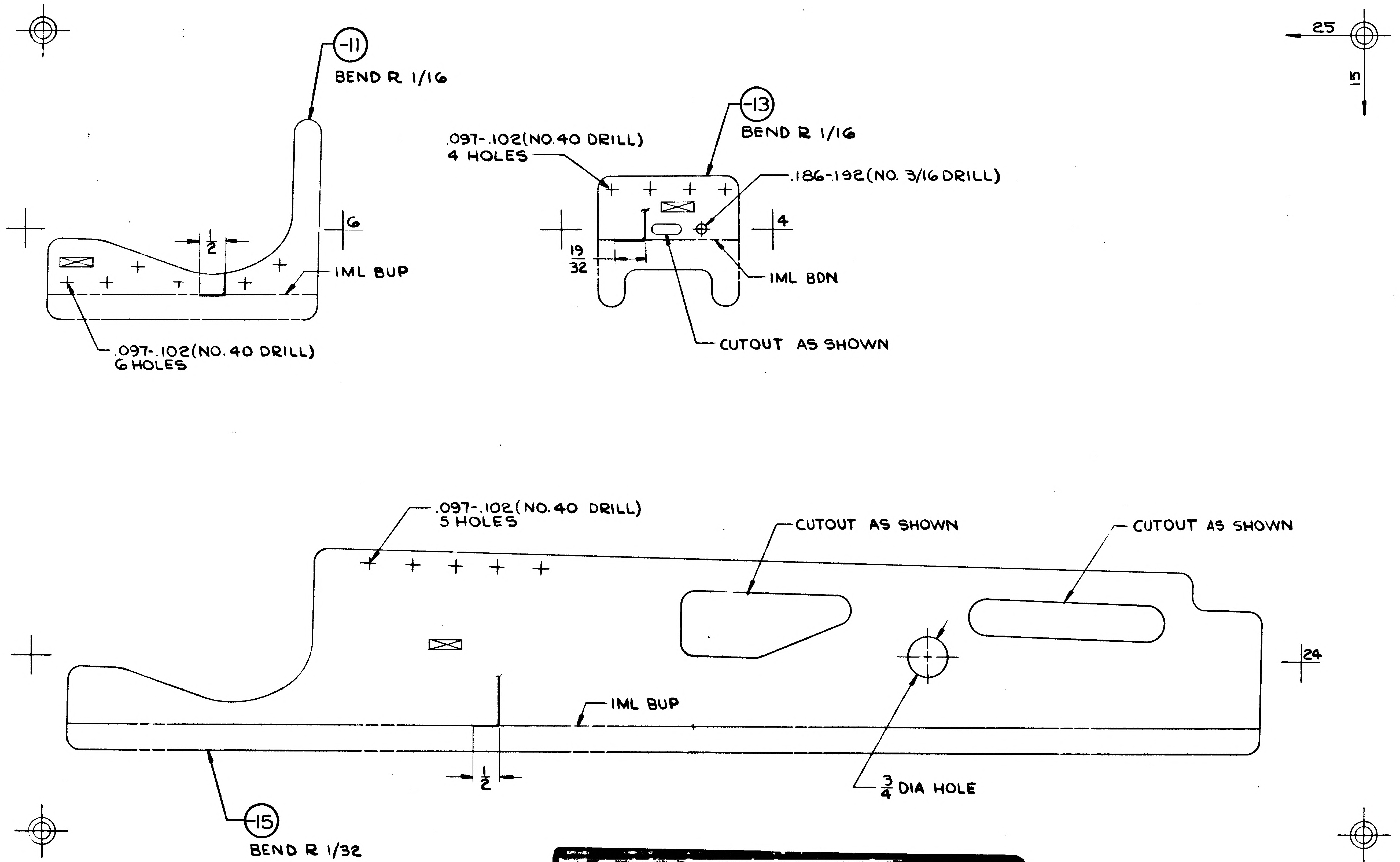
01

NAS 9-1100

LDW280-18614

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
-11
BEND R 1/16
6
2
IML BUP
.097-.102(NO. 40 DRILL)
6 HOLES
-13
BEND R 1/16
.097-.102(NO.40 DRILL)
4 HOLES
.186-.192(NO. 3/16 DRILL)
4
19/32
IML BDN
CUTOUT AS SHOWN
.097-.102(NO. 40 DRILL)
5 HOLES
CUTOUT AS SHOWN
CUTOUT AS SHOWN
24
IML BUP
1/2
3/4 DIA HOLE
-15
BEND R 1/32

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18614

SCALE FULL SHEET 3.00

FOR PHOTO REPRODUCTION

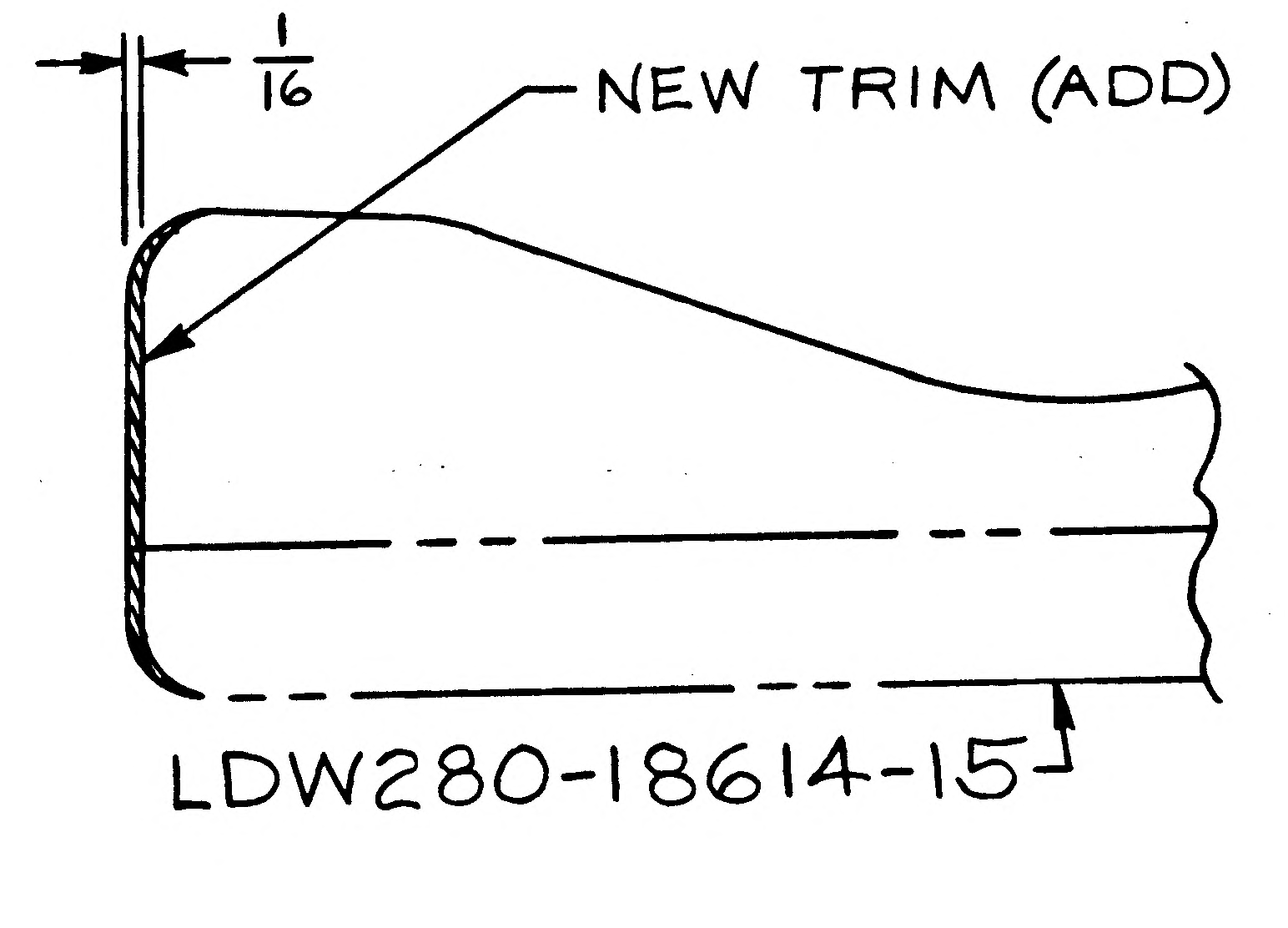
K2

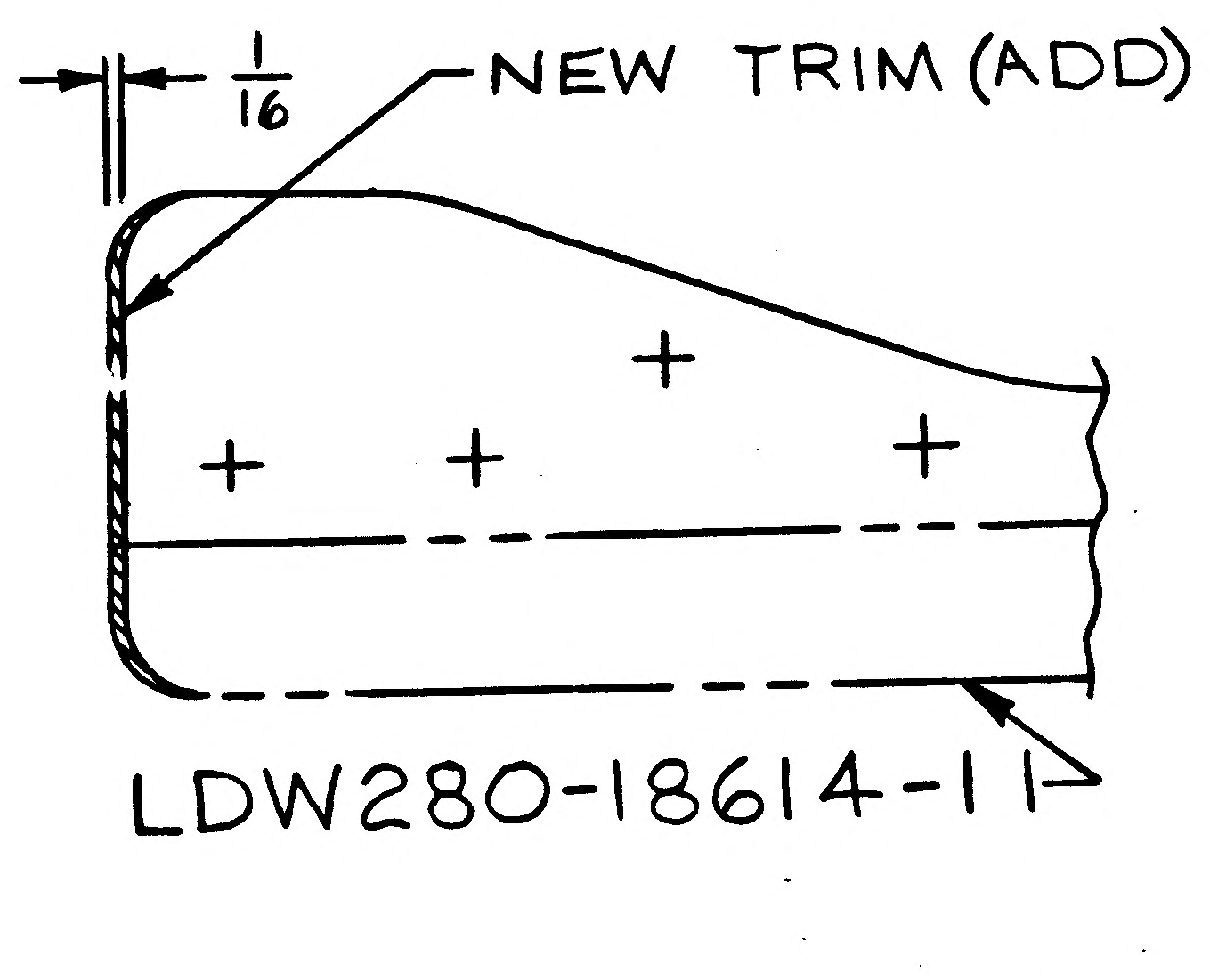
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LDW280-18614	EO NO.	A1
CONTROL INFO NO.	LM-2-4972		





FOR REWORK TRIM PARTS AS SHOWN & REFINISH BARE SURFACES #76 (ALODINE) PER LSP14-9010.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3075 LCD1433 CCA586 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
ELIMINATE INTERFERENCE WITH TOOLING FOR INSTALLATION OF BOOM	FOR -11 & -15, IN FLD/DWG REVISED TRIM	02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34) THRU	
		LM-15 (45) TM-5/R (65)	
		DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY				—	J. M	CH		
DATE	10/3/68			—	10-2-68	10/2/68	10/3/68	10-4-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE~DESCENT STAGE SCIENTIFIC EQUIPMENT~UPPER DECK	LDW280-18614	A1

ISSUED BY LIAISON J. MALONEY 9/30/68 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1346
CONTROL INFO NO. LDW280B 7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615	A1	
-18620	A3	
-18627	A1	
-18628	B1	
-18630	A7	
-18631	A1	
-18638	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	I ENGRG CHG	☑	LCD3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1346

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1555
CONTROL INFO NO. LDW 280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18610	SEE DWG	A4
611		A3
612		A3
613		A4
614		A3
615		A2
620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG ☑ LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY							
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~EO~~ REL

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1555

8-29-69
ISSUED BY G. HANSMANN X 87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54575	DVT (70)	1EA
LM	↑	TM-5/R(65)	1EA
LM	│	LM-15(45)	1 EA
LM	│	LM-14(44)	1 EA
LM	│	LM-13(43)	1 EA
LM	│	LM-12(42)	1 EA
LM	│	LM-11 (41)	1 EA
LM	│	LM-10(40)	1 EA
LM	│	LM-9(39)	1 EA
LM	│	LM-8(38)	1 EA
LM	│	LM-7(37)	1 EA
LM	│	LM-6(36)	1 EA
LM	↓	LM-5(35)	1 EA
LM	LDW280-54575	LM-4(34)	1 EA
PART NO. LDW280-18615-11, -13, -15, -17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 217 NK001 MP-16 6/12/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3075 & 1433
(CCA586) o.k.

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	P. GARDIANOS 6/7/68	RELIABILITY	
LAYOUT BY	J. LANG J.L.		
CHECKED BY	JOHN BELL 6/10/68		
GR. LEADER	Thoyusen 6-10-68		
VEH DES INT	6/11/68		
STRUCT	JG WH 6/11/68	PROJ ENGR	J. Pusateri 6/11/68
STRUCT	FSB 6/11	REL GROUP	J. Marsh 6/11/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - EQUIP BAY
UPPER DECK - BEAM

SIZE	CODE IDENT NO.	
B	26512	LDW280-18615

SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 9-64

CDR 061568

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18615-19	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.024x2x4	NONE	88	
								-17	E	DOUBLER		QQ-A-250/12	7075-T6	.063x2x13	NONE	88	
								-15	E	CLIP		QQ-A-250/4	2024-T3	.040x 2 x4	NONE	88	
								-13	E	DOUBLER		QQ-A-250/12	7075-T6	.032X 3 x4	NONE	88	
								LDW280-18615-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075-T6	.016X 4 x24	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
							AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18615

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

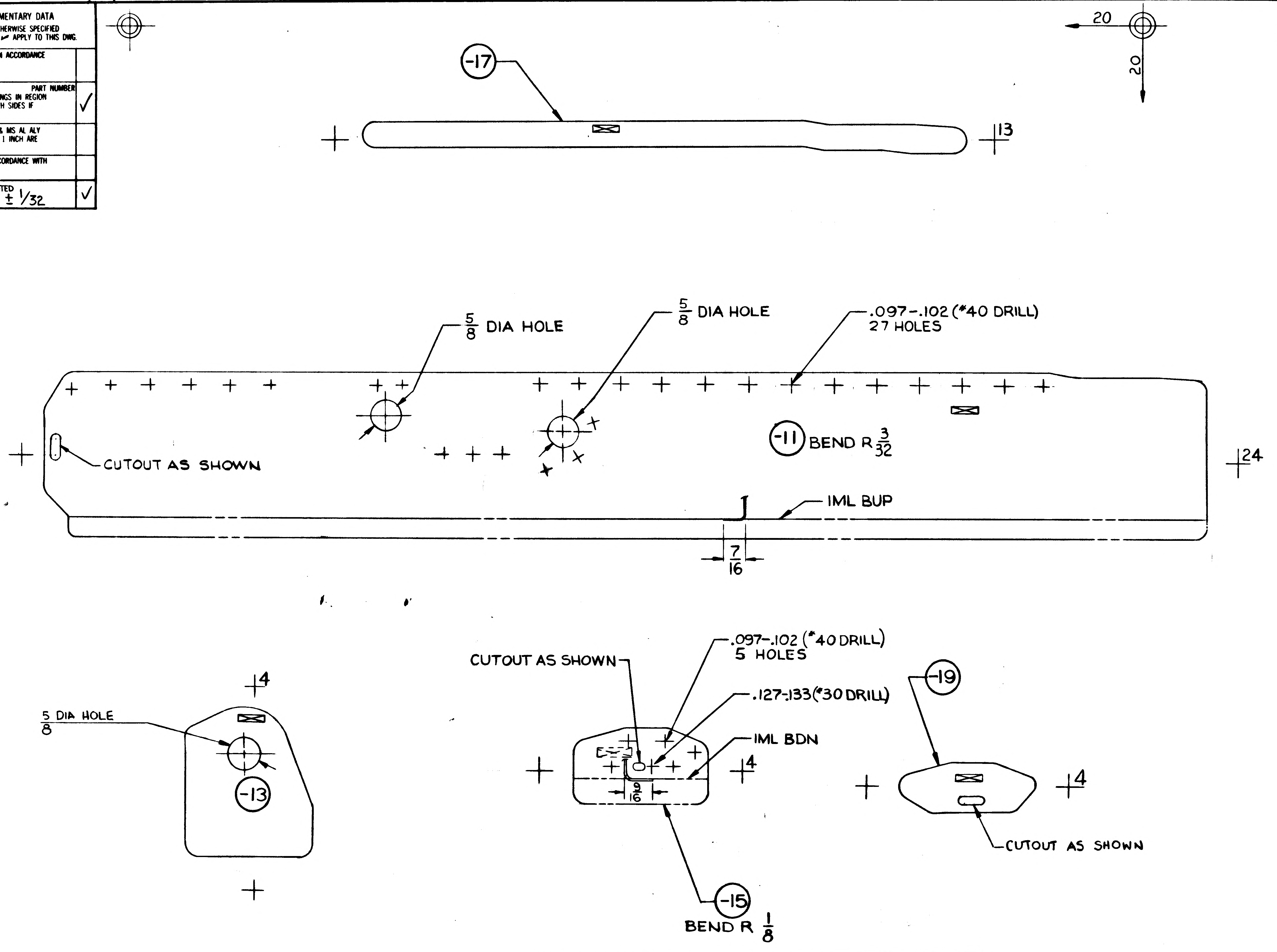
01

NAS 9-1100

LDW280-18615

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.


20
20
-17
13
5/8 DIA HOLE
5/8 DIA HOLE
.097-.102 (#40 DRILL)
27 HOLES
-11 BEND R 3/32
24
CUTOUT AS SHOWN
IML BUP
7/16
.097-.102 (#40 DRILL)
5 HOLES
CUTOUT AS SHOWN
.127-.133 (#30 DRILL)
IML BDN
-19
5/8 DIA HOLE
4
-13
4
9/16
4
CUTOUT AS SHOWN
-15
BEND R 1/8

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714		
LM MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280-18615
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615 ✓	A1	
-18620	A3	
-18627	A1	
-18628	B1	
-18630	A7	
-18631	A1	
-18638	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/14/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SDVP~~

PRIORITY C
DRAWING TITLE SEE DWG
DRAWING NO. LEO 280
EO NO. 1346

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 - 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1555
CONTROL INFO NO. LDW280B 3122

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
LDW280-18610	SEE DWG	A4
611		A3
612		A3
613		A4
614		A3
615		A2
620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				APPROVED BY	PBF				N		
✓		NOT REQ'D		DATE	7-29-69			7/29/69	8-2-69		8/5/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

8-15-69 REL

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18616

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54679	TM5/R(65)	1EA	LM	LDW280-54575	TM5/R(65)	1EA
LM	LDW280-54679	DVT(70)	1EA	LM	LDW280-54575	DVT(70)	1EA
LM	LDW280-54679	LM-15(45)	1EA	LM	LDW280-54575	LM-15(45)	1EA
LM	LDW280-54679	LM-14(44)	1EA	LM	LDW280-54575	LM-14(44)	1EA
LM	LDW280-54679	LM-13(43)	1EA	LM	LDW280-54575	LM-13(43)	1EA
LM	LDW280-54679	LM-12(42)	1EA	LM	LDW280-54575	LM-12(42)	1EA
LM	LDW280-54679	LM-11(41)	1EA	LM	LDW280-54575	LM-11(41)	1EA
LM	LDW280-54679	LM-10(40)	1EA	LM	LDW280-54575	LM-10(40)	1EA
LM	LDW280-54679	LM-9(39)	1EA	LM	LDW280-54575	LM-9(39)	1EA
LM	LDW280-54679	LM-8(38)	1EA	LM	LDW280-54575	LM-8(38)	1EA
LM	LDW280-54679	LM-7(37)	1EA	LM	LDW280-54575	LM-7(37)	1EA
LM	LDW280-54679	LM-6(36)	1EA	LM	LDW280-54575	LM-6(36)	1EA
LM	LDW280-54679	LM-5(35)	1EA	LM	LDW280-54575	LM-5(35)	1EA
LM	LDW280-54679	LM-4(34)	1EA	LM	LDW280-54575	LM-4(34)	1EA
PART NO. LDW280-18616-15-17-19		GAEC SCH NO.		PART NO. LDW280-18616-11-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED
LAST DASH NO. USED -19
GRUMMAN REL INFO
PRIM NO. 207 JK(001) MP-16-6/12/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ±1/2°
G ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 1433 & 3075

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY AL MASONE 6-8-68
RELIABILITY
LAYOUT BY J. LANG 6-1-68
CHECKED BY J.K. 6-11-68
GP LEADER 6-11-68
VEH DES INT C. Pusateri 6/11/68
STRUCT 6/11/68
STRUCT (EB) 6/12/68
WEIGHTS
PROJ ENGR J. Pusateri 6/12/68
REL GROUP J. Tagliairo 6-12-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - SCIENTIFIC EQUIP. BAY
UPPER DECK BEAM

SIZE B
CODE IDENT NO. 26512
LDW280-18616
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CCA 586 OK

CDR 061568

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18616-19	E	DOUBLER	AL ALLOY	7075-T6	QQ-A-250/12	.024X 3 x 4	NONE	88	
		LDW280-18616-17	E	CLIP	AL ALLOY	2024-T3	QQ-A-250/4	.032X 2 x 2	NONE	88	
		LDW280-18616-15	E	CLIP	AL ALLOY	2024-T3	QQ-A-250/4	.032X 3 x 3	NONE	88	
		LDW280-18616-13	E	CLIP	AL ALLOY	2024-T3	QQ-A-250/4	.032X 3 X 4	NONE	88	
		LDW280-18616-11	E	ANGLE	AL ALLOY	7075-T6	QQ-A-250/12	.016X 4 X 25	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18616

SCALE NONE

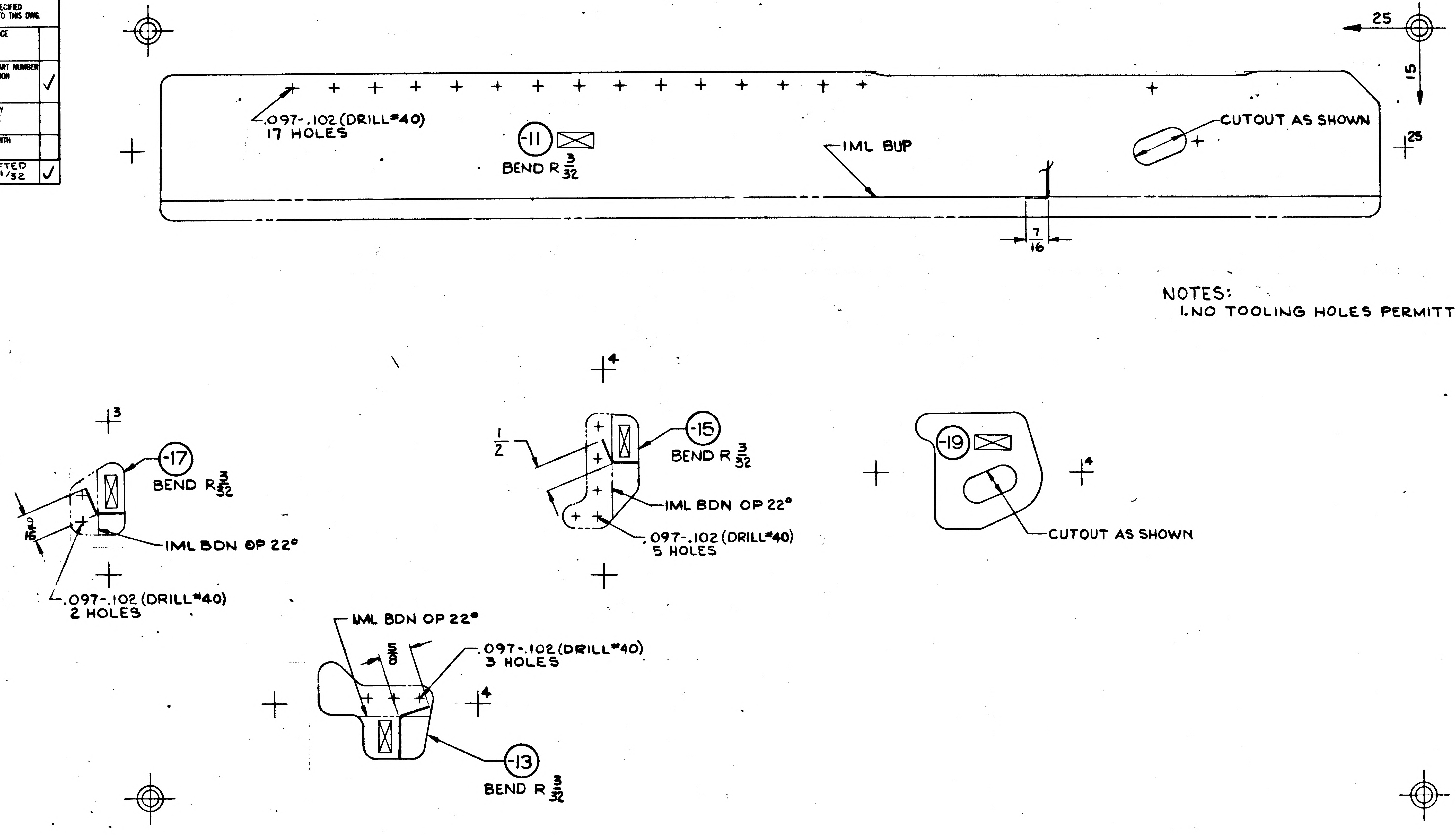
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


25
15
25
.097-.102 (DRILL #40)
17 HOLES
-11
BEND R 3/32
IML BUP
CUTOUT AS SHOWN
7/16
-17
BEND R 3/32
5/16
IML BDN OP 22°
.097-.102 (DRILL #40)
2 HOLES
1/2
-15
BEND R 3/32
IML BDN OP 22°
.097-.102 (DRILL #40)
5 HOLES
-19
CUTOUT AS SHOWN
IML BDN OP 22°
5/8
.097-.102 (DRILL #40)
3 HOLES
-13
BEND R 3/32
3
4
4
4

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18616
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

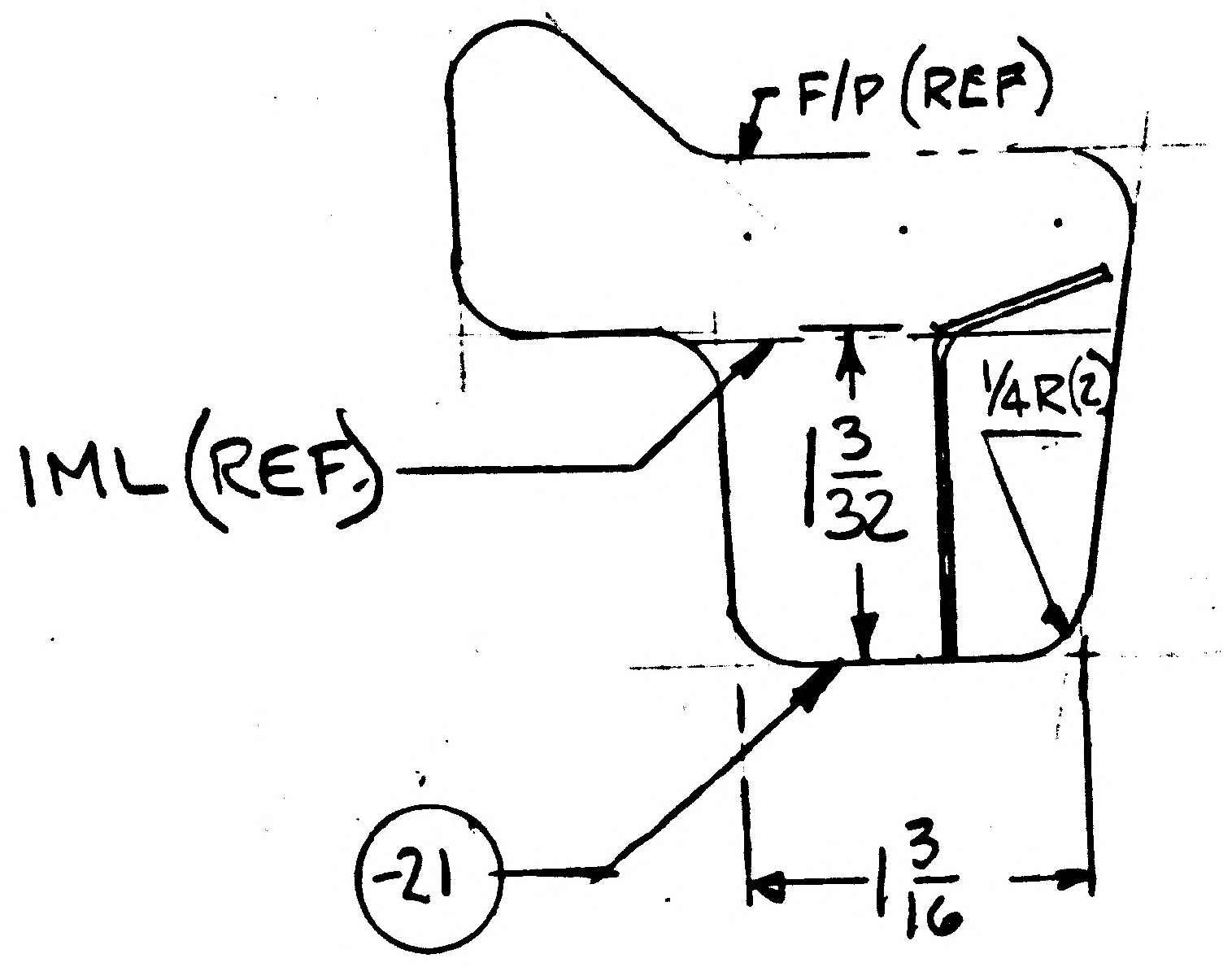
2K

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEER''IG ORDER

DWG. NO. LDW280-18616
EO NO. A1
CONTROL INFO NO. LDW280B3952

REMOVE -13. ADD -21 IDENTICAL TO -13 EXCEPT AS NOTED



LOFTED PART
DIMS NOT TO APPEAR ON DWG.

(5)
✓ LCD 1433 CCA 586 CCA 1111 PKG 13 / LCD 3075 PKG 2U

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	

REASON FOR EO: IMPROVE EDGE DISTANCE

DESCRIPTION OF EO: ADDED -21
REMOVED -13

GAEC EO RELEASE: C JK 6/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	TM5/R (65)		
LM	DVT (70)		
LM	LM-4 (34)	THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	6/15/68			6/15	6/15		6/15/68	6-15-68
G	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: ANGLE - D/S - SCIENTIFIC EQUIP. BAY UPPER DECK BEAM
DRAWING NO.: LDW280-18616
EO NO.: A1

6/17/68
ISSUED BY J. LANG / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1641
CONTROL INFO NO. LDW280B 8441

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280 -	SEE DRAWING	LDW 280	
-17882		-23578	B6
-17883		-23578	C3
M17628		-23578	C2
-18381		-23578	A7
-17713		-54577	D3
-17715		-54577	C3
-18348		-54577	A5
-18378		-54577	A6
-18616		-54679	A2
LDW 280 - 71512		LDW 280 -54679	A4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 4, 5, 6, 7, 8 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-69
JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK | SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	8-8-69			8/4/69	8/12/69			8-27-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1641

8-26-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1867

CONTROL INFO NO. LDW280C0199

[illegible] FOR DASH * WITH N/A ▽ REMOVE LTA-3DR/1 (460) REQMTS.:

	DWG. NO. & DASH NO. *	CHANGE NO.	N/A ▽	DWG. NOMENCLTR.
✓	LDW280M17890-11	A6	LDW280-54679	SEE DWG.
✓	-18513-11,-13,-15,-17,-21,	A10		
✓	-18458-11,-13,-17,-17-1,-19	B4		
✓	M17969-11	A7		
✓	-71512-11,-13(2),-15,-17,-18	A5		
✓	-18616-15,-17	A3		
	M18022-11	A5		
	M18026-11	A4	LDW280-54679	
	LDW280M17854-11	A6	LDW280-54576	

*

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG12 & 13

REASON FOR EO: TO EXPEDITE MANUFACTURING OPERATIONS

DESCRIPTION OF EO: FOR DASH * REMOVED LTA-3D/R1 FOR N/A ▽

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF
					NM			
DATE	3-20-70			3/20/70	3/23/70		3/24/70	3/24/70
	VD1	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO.: LEO280

EO NO.: 1867

CDR. 032470

ISSUED BY A. GROSS / G. HANSMANN SECTION VEH. DES. INT GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LSC 410-32440 LDW 410-32440		SN 1 SN 2	1 EA				

PART NC. LSC 410-32440-3

GAEC SCH NO.

PART NO.

GAEC SCH NO.

GSE 33

GRUMMAN REL INFO D			
PRIM NO.	pc 26		
741	LC 72766		

SHEET REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00		4.00	5.00						
REV	D	D	C		C		C	C						

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS — DEC — ANGLES
±1/2

ORIG DWG AUTH

DETAIL SPEC REQ	
CLASS II ENGRG CHG	
CLASS I ENGRG CHG	

DRAWN BY	I. ROTHENBERG 7 JAN 65	COG. ENGR.	
LAYOUT BY			
CHECKED BY	1-7-65	GRP. LDR.	3/10/65
GSE ENGR	3-11-65	SPECIFICATIONS	8-26-65
RELIABILITY	8/26/65	GSE PROJ ENGR	8/26
		RELEASE	

LINE ITEM 014 DOCUMENTATION TYPE II

CONTRACT NO. NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEST STATION, ANTENNA MAINTENANCE

SIZE	CODE IDENT NO.		
A	26512	LSC 410-32440	D

SCALE: NONE

SHEET 1.0 OF 6

SPECIFICATION CONTROL DRAWING

ENG 77.5 7-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LDW280-18620 | EO NO. A1
CONTROL INFO NO. LDW280-B5161

ON -11
CHANGE FINISH BOX TO READ: PER LSP-14-10300 TYPE II, SEE NOTE *
IN FIELD, ADD

NOTE *: THE FOLLOWING, INCLUDING GENERAL REQUIREMENTS OF LSP-14-10300 SHALL BE FOLLOWED IN THE APPLICATION OF TYPE II HEAT CURED DRY FILM LUBRICANT TO QQ-W-470 MUSIC WIRE (CARBON, WIRE)

1. PREPARATION OF SURFACE
   a) VAPOR DEGREASE PER LSP-14-7010 OR SOLVENT CLEAN PER LSP-14-7011
   b) APPLY PHOSPHATE PER LSP-14-9022 EXCEPT THAT SAND BLAST OR GRIT BLAST OF ANY TYPE OR DEGREE IS NOT PERMISSABLE
2. APPLY TYPE II LUBRICANT PER LSP-14-10300
3. CURE BY BAKING AT 360°F ±10°F FOR 2 HOURS ±10 MIN.

* USE NEXT AVAILABLE NOTE NUMBER ✓ (5)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 20" (CCA 668) PKG 24; LCD 3075 (CCA 586) PKG 1; LCD 3128 PKG 1

REASON FOR EO: TO ADD NOTES NECESSARY FOR APPLICATION OF LSP-14-10300 LUBRICANT ON QQ-W-470

DESCRIPTION OF EO: ADDED "SEE NOTE *" TO FINISH BOX
ADDED NOTE *

GAEC EO RELEASE: 1C
JK 8/23/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU LM-15(45)	
		TM-5IR(65)	
		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	8/27/68			8-14-68	8/14/68	8-14-68	8/15/68	8/23/68
S	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	MAT'LS ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SPRING ~D/S QUAD IV ~ M.E.S.A. DEPLOYMENT MECH
DRAWING NO. LDW280-18620
EO NO. A1

8-27-68
ISSUED BY J. CLARK X 86046
SECTION VD1
GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18620
EO NO. A2
CONTROL INFO NO. LM-29-1272

IN F/D ADD NOTE **

* BEND RADIUS TO BE .25±.03

* DENOTES NEXT AVAILABLE NOTE NO.

LCD 2011 (CCA 668) PKG#24
LCD 3075 (CCA 586) PKG#1, LCD 3128 (29)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓

REASON FOR EO: TO PROVIDE ADD. INFO REQ'D TO MANUFACTURE DETAIL

DESCRIPTION OF EO: IN F/D ADDED NOTE **

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-5 (35)	THRU LM-15 (45)	
LM	TM-5R (65)		
LM	DVT (70)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D
APPROVED BY
DATE: 8-23-68 VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER
STRESS GROUP
LIAISON ENGRG
PROJ ENGRG: 9-6-68

PRIORITY: C
DRAWING TITLE: TORSION SPRING-DESCENT STAGE-QUAD IV MODULE EQUIP. STOWAGE ASSY DEPLOY. MECH.
DRAWING NO.: LDW280-18620
EO NO.: A2

ISSUED BY LIAISON A. MORGAN (EXT 7930) SECTION VEH. DES. & INT. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615 ✓	A1	
-18620 ✓	A3	
-18627	A1	
-18628	B1	
-18630	A7	
-18631	A1	
-18638	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 387 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM *

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1346

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted]. LEO 280		EO NO. 1555
CONTROL INFO NO. LDW280B 8122		

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10 (40)~~ [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18610	SEE DWG	A4
✓ 611		A3
✓ 612		A3
✓ 613		A4
✓ 614		A3
✓ 615		A2
✓ 620		A4
627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 7#40 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE
8-13-69
8/15/69
8-15-69
REL

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK NOT REQ'D	SCRAP

APPROVED BY							
DATE	7-29-69			7/29/69	8-2-69		
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01
NAS 9-1100

ENG 33.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1790
CONTROL INFO NO. LDW280B7930		

FOR DASH NO.'S* WITH THE NOTED N/A ON THE FOLLOWING DWGS., REMOVE LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

DRAWING NO.	DASH NO.*	N/A	TITLE	CHG.
LDW280M17918	-11	LDW280-66507	SEE DWG.	A3
M17919	-11			A4
M17920	-11			A3
M17921	-11			A3
M17922	-11			A3
M18030	-11			A3
-18620	-11			A5
LDW280P18625	-11, -13	LDW280-66507	SEE DWG.	A3

01

NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG. 73 OK JG (5)

REASON FOR EO: REDESIGN OF DEPLOYMENT MECH. DUE TO INCREASED LOADS ON LMMP

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

GAEC EO RELEASE: SAL8 12-11-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44)	
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	12/5/69			12/4/69	9/69		12/15/69	12/15/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO280

EO NO.: 1790

1/31/70

ISSUED BY L. KRAVITZ / HANSMANN x87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

LDW280-18623

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54527	LM-15(45)	2EA
↕	LDW280-54526	THRU	↕
	LDW280-54525		
LM	LDW280-54524	LM-4(34)	2 EA

PART NO. LDW280-18623-11-13-15

GAEC SCH NO.

WORK PKG FUNCTION NO.111 ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO

PRIM NO. 207 HF-001 MP-16 7/25/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/64 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD-3248

CONTRACT NO. NAS9-1100

DRAWN BY	A. BISHOP 6-28-68	WEIGHTS	
LAYOUT BY	D. RAGAS	THERMO	7/11/68
CHECKED BY	7-1-68		
GR LEADER	Thompson 7-5-68		
VEH DES INT	J. Pusateri 7/9		
STRUCTURES	7/10/68	PROJ ENGR	J. Pusateri 7/11/68
STRUCTURES	for FEB 7/10/68	REL GROUP	7-23-68

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP~
DESCENT STAGE~LWR LDG
GEAR PROTECTION SHIELD

SIZE B | CODE IDENT NO. 26512 | LDW280-18623

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

PKG #1

CDR-7-12-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18623-15	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-0	.032X2X2	T42	88	
		LDW280-18623-13	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-0	.032X2X2	T42	88	
		LDW280-18623-11	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-0	.032X2X4	T42	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T42	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18623
①
SCALE NONE
SHEET 2.00

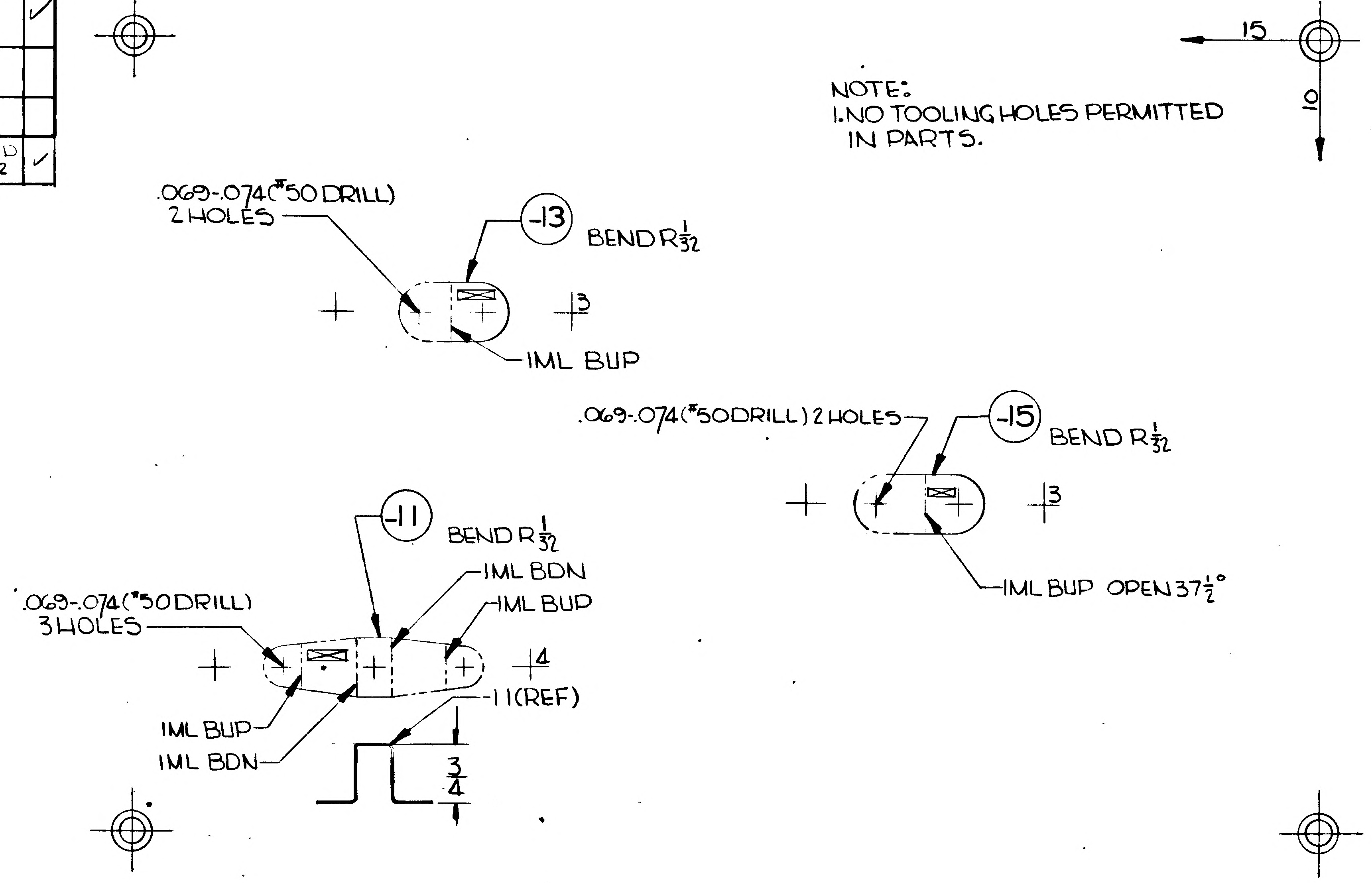
ENG 77.2 7-65

01

NAS 9-1100

TRANS OK [illegible]

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓


15
10
.069-.074(#50 DRILL)
2 HOLES
-13
BEND R 1/32
3
IML BUP
.069-.074(#50 DRILL) 2 HOLES
-15
BEND R 1/32
3
IML BUP OPEN 37½°
-11
BEND R 1/32
IML BDN
IML BUP
.069-.074(#50 DRILL)
3 HOLES
4
11(REF)
IML BUP
IML BDN
3/4

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18623
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18623

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18623
EO NO. A1
CONTROL EO NO. LDW280B5279

ON -11, -13, -15 REMOVE LM-4 (34)
REQUIREMENTS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3248 PKG 2

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH LANDING GEAR DEPLOYMENT MECH.

DESCRIPTION OF EO: ON -11, -13, -15 REMOVED LM-4 (34) REQUIREMENTS

GAEC EO RELEASE: JK 8-26-68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	✓

APPROVED BY					NM				
DATE	8/26/68	8/26/68		8-26-68	8/26/68		8/26/68	8/26/64
Q	VDI	~~SUPPORT~~ THEEM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP-D/S-LOWER LANDING GEAR	LDW280-18623	A1

CDR 8/26/68
ISSUED BY D. BELLOTTI/P. THORJUSEN SECTION V.D.I. X-84662 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18626

LFM

LFM 213	LDW280-66524	LM-3(33)	1 EA
LFM 213	LDW280-66524	LM-2(32)	1 EA
LFM 213	LDW280-66524	LTA-3(13)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18626-11,-12 -17,-18,-19 &-20		GAEC SCH NO.	

LFM 213	LDW280-66524	LM-3(33)	4
LFM 213	LDW280-66524	LM-2(32)	4
LFM 213	LDW280-66524	LTA-3(13)	4
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18626-15		GAEC SCH NO.	

LFM 213	LDW280-66524	LM-3(33)	2
LFM 213	LDW280-66524	LM-2(32)	2
LFM 213	LDW280-66524	LTA-3(13)	2
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18626-13		GAEC, SCH NO.	

WORK PACKAGE FUNCTION NO 111 ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00		3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -20

GRUMMAN REL INFO

PRIM NO. 207 HF-001 MP-16 7/24/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3310

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY GARRAFFO

LAYOUT BY J.LANG

CHECKED BY GC 7-22-68

GR LEADER 7/23/68

VEHDES INT 7/23

STRUCTURES G.M. 7/23/68

STRUCTURES 7/23/68

WEIGHTS

PROJ ENGR 7/23/68

REL GROUP 7-23-68

Ⓔ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~INTER
STAGE FITTING~FWD~ SPLICE

SIZE B

CODE IDENT NO. 26512

LDW280-18626

SCALE NONE

SHEET 1.00 OF 3

CDR 7-22-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18626-20	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063x2x5	T6	88	
		LDW280-18626-19	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063x2x5	T6		
		-18		ANGLE			7075	.063x3x5	T6		
		-17		ANGLE			7075	.063x3x5	T6		
		-15		PLATE			7075-T6	.063x3x5	NONE		
		-13		ANGLE			7075	.063x4x5	T6		
		-12		ANGLE			7075	.063x4x5	T6		
		LDW280-18626-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063x4x5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18626

SCALE NONE

SHEET 2.00

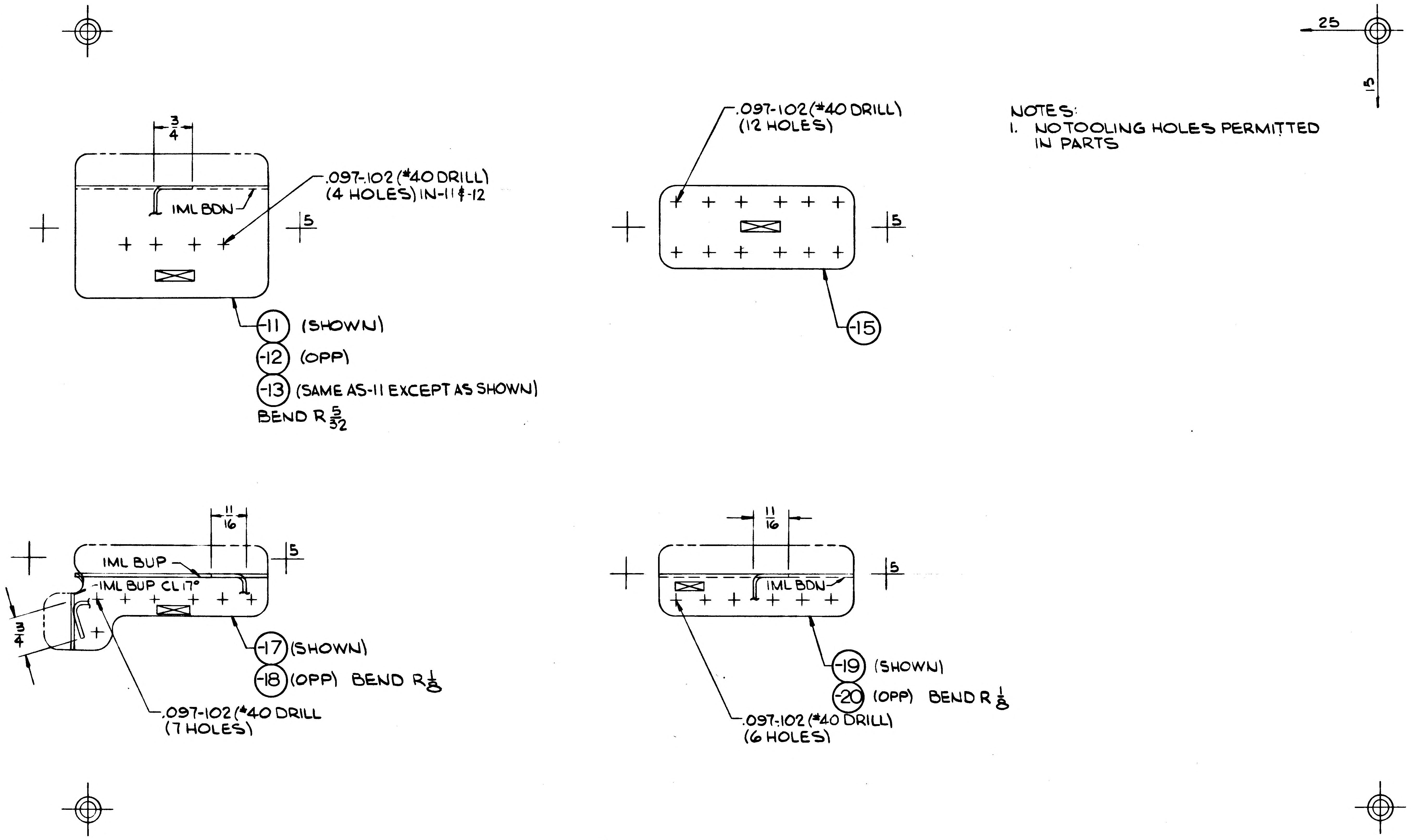
ENG 77.2 7-65

01

NAS 9-1100

TRAN OK
T.S. 7-19-68

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓



25
15
3/4
IML BDN
.097-.102 (#40 DRILL) (4 HOLES) IN -11 & -12
5
-11 (SHOWN)
-12 (OPP)
-13 (SAME AS -11 EXCEPT AS SHOWN) BEND R 5/32
.097-.102 (#40 DRILL) (12 HOLES)
5
-15
11/16
IML BUP
IML BUP CL 17°
5
3/4
-17 (SHOWN)
-18 (OPP) BEND R 1/8
.097-.102 (#40 DRILL (7 HOLES)
11/16
IML BDN
5
-19 (SHOWN)
-20 (OPP) BEND R 1/8
.097-.102 (#40 DRILL) (6 HOLES)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS

Q1

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18626
SCALE FULL		SHEET 3.00

ENG 73.3 REV 5-67

FOR PHOTO REPRODUCTION

LDW280-18627

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66517	DVT (70)	1
		TM-5/R(65)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM	LDW280-66517	LM-5(35)	1

PART NO. LDW280-18627-11

WORK PACKAGE FUNCTION NO. 110 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO c

PRIM NO. 215 JK(001) MP-16 7/30/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2011, CCA 668, LCD3075
CCA586, LCD 3128

CONTRACT NO. NAS 9-1100
DRAWN BY GIORDANO 7-22-68
LAYOUT BY J. CLARK
CHECKED BY JOHN BELL 7/23/68
GRP LDR 7/23/68
VEH DES INT 7/24/68
STRUCT WPB 7/26/68
STRUCT 7/26/68
WEIGHTS
RELIABILITY
PROJ ENGR 7/26/68
REL GROUP 7/30/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TERMINAL
DESCENT STAGE-QUAD IV-MOD EQUIP
STOWAGE-CABLE

SIZE B
CODE IDENT NO. 26512
LDW280-18627
SCALE NONE
SHEET 1.00 OF 3

CDR 08-05-68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18627-11	E	TERMINAL	MAKE FROM	GT510B-2		NOTE #2	NONE	NOTE 3	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18627

SCALE NONE
SHEET 2.00

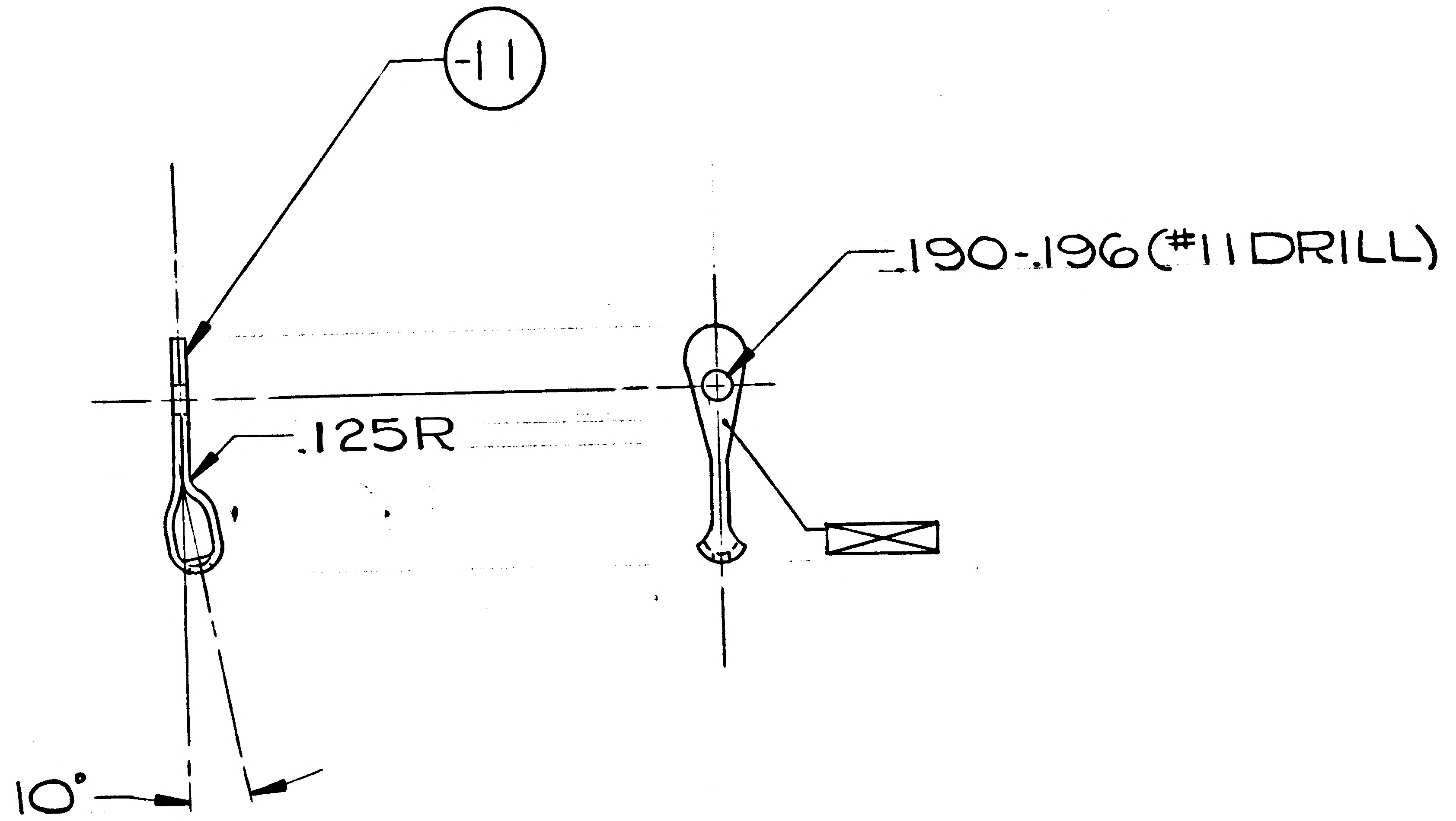
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. -11 ALTERED FROM GRUMMAN STD PART NO. GT510B-2.
3. APPLY DRY FILM LUBRICANT PER LSP-14-10300, TYPE II.



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18627
SCALE FULL		SHEET 300

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.		CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613	✓	A3	SEE DWG
-18614	✓	A2	
-18615	✓	A1	
-18620	✓	A3	
-18627	✓	A1	
-18628		B1	
-18630		A7	
-18631		A1	
-18638		A2	
LDW280 -18639		A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ☑ SCRAP

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1346

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

E 1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1555
CONTROL INFO NO. LDW280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18610	SEE DWG	A4
✓ 611		A3
✓ 612		A3
✓ 613		A4
✓ 614		A3
✓ 615		A2
✓ 620		A4
✓ 627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: ® SaB 8-13-69; JK 8/15/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY	PST				N			CJK
DATE	7-29-69			7/29/69	8-7-69		8/2/69	8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPV~~ REL

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LEO 280 | EO NO.: 1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280 | EO NO. 1783

CONTROL INFO NO. LDW280B7939

FOR *, N/A LDW280-66517 DELETE LM-10 (40) THRU LM-14 (44) & LTA-11(23) EFF

DWG NO.*	DASH NO.*	DWG TITLE	CHG NO.
LDW280-18627	-11	SEE DWG	A3
↑ M17801	-11	↑	A6
↓ M17802	-11	↓	A6
LDW280 M17803	-11	SEE DWG	A6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 72 ⑤

REASON FOR EO: REDESIGN OF MESA

DESCRIPTION OF EO: FOR *, DELETED LTA-11(23) & LM-10(40) THRU LM-14(44) EFF - N/A LDW280-66517

GAEC EO RELEASE: JK 12/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44) &	LTA-11(23)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY							
DATE	12/9/69			12/5/69	12/10/69		12/10/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

12/12/69

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1783

CDR 12-12-69

ISSUED BY: HERB DONNER X86046 SECTION: VDI GROUP NO. 335 PL 25

01 G

NAS 9-1100

LDW280-18628 A

LFM

PART NO. LDW280-18628-16

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT (70)	1
LM	LDW280-66663	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM		LM-6 (36)	1
LFM	LDW280-66663	LM-5 (35)	1

PART NO. LDW280-18628-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT (70)	1
	LDW280-66663	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM		LM-6 (36)	1
LFM 200	LDW280-66663	LM-5 (35)	1

PART NO. LDW280-18628-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT (70)	6
LM	LDW280-66663	LM-15 (45)	6
LM		LM-14 (44)	6
LM		LM-13 (43)	6
LM		LM-12 (42)	6
LM		LM-11 (41)	6
LM		LM-10 (40)	6
LM		LM-9 (39)	6
LM		LM-8 (38)	6
LM		LM-7 (37)	6
LM		LM-6 (36)	6
LFM 200	LDW280-66663	LM-5 (35)	6

PART NO. LDW280-18628-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT (70)	7
LM	LDW280-66663	LM-15 (45)	13
LM		LM-14 (44)	13
LM		LM-13 (43)	13
LM		LM-12 (42)	13
LM		LM-11 (41)	13
LM		LM-10 (40)	13
LM		LM-9 (39)	13
LM		LM-8 (38)	13
LM		LM-7 (37)	13
LM		LM-6 (36)	13
LFM 200	LDW280-66663	LM-5 (35)	13

PART NO. LDW280-18628-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT (70)	2

FOR ADDITIONAL USAGE INFORMATION SEE SH. 1.01

WORK PKG FUNCTION NO. 111

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -27

GRUMMAN REL INFO A

PRIM NO. 207

JK(001) ME-1A-2/1/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2965 CCA 1235

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY LUNDSTEN 8-21-68

LAYOUT BY TAVIANINI

CHECKED BY 8-21-68

GR. LEADER Thompson 8-23-68

VEH DES INT 8/23/68

STRUCTURES —

STRUCTURES N. MARKELOFF 8/24/68

WEIGHTS

RELIABILITY

THERMO N. Rudolph 8/27/68

PROJ ENGR 8/28/68

REL GROUP March

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ LOWER
THERMAL SHIELD SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18628 A

SCALE NONE

SHEET 1.00 OF 5

ENG 77.1 12-65

CDR 082368

01

NAS 9-1100

LDW280-18628 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66661	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LFM 200	LDW280-66661	LM-5 (35)	1 EA
PART NO. LDW280-18628-25 & -27		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LFM 200	LDW280-66663	LM-5 (35)	1 EA
PART NO. LDW280-18628-21 & -23		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
~~DOCUMENTATION TYPE~~
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18628	A
SCALE NONE		SHEET 1,01 OF	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		LFM200					INC EO-A1 ADDED SH 1.10	LM-5 THRU LM-15			N. OESTERHELD 1-20-69		1-31-69
	2	3.00		LFM200					INC EO-A2	DVT 70					
	3	1.00, 1.01 2.00							INC EO-A3	DVT 70					
	4	1.00, 1.01 2.00, 3.00		LFM 200					INC EO-A4 ADDED SH 1.01	LM-5 THRU LM-15					
	5	1.00, 1.01 2.00, 3.00		LFM 200					INC EO-A5						

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO	RELIABILITY				
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DRAWING NO.	REV
B	26512	LDW280-18628	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

												MIL-T-9046, TYPE III					
								LDW280-18628-27	E	CLIP	TITANIUM SH	COMP. C, COND ANL	6AL-4V	.040 × 1 1/2 × 2	NONE	NONE	
								-25	E	↑	↑	↑	↑	.040 × 1 × 2 3/4	↑	↑	
								-23	E					.030 × 3/4 × 1 5/8			
								-21	E					.030 × 1 1/4 × 1 1/2			
								-19	E					.040 × 1 1/2 × 3 5/8			
								-17	E					.040 × 1 5/8 × 2 1/2			
								-16	E			↓		.040 × 1 7/8 × 3 5/8			
								-15	E	↓	↓	MIL-T-9046, TYPE III	↓	.040 × 1 7/8 × 3 5/8	↓	↓	
								LDW280-18628 -13	E	CLIP	TITANIUM SH	COMP. C, COMP ANL	6AL-4V	.030 × 1 1/4 × 2 1/2	NONE	NONE	
QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18628	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

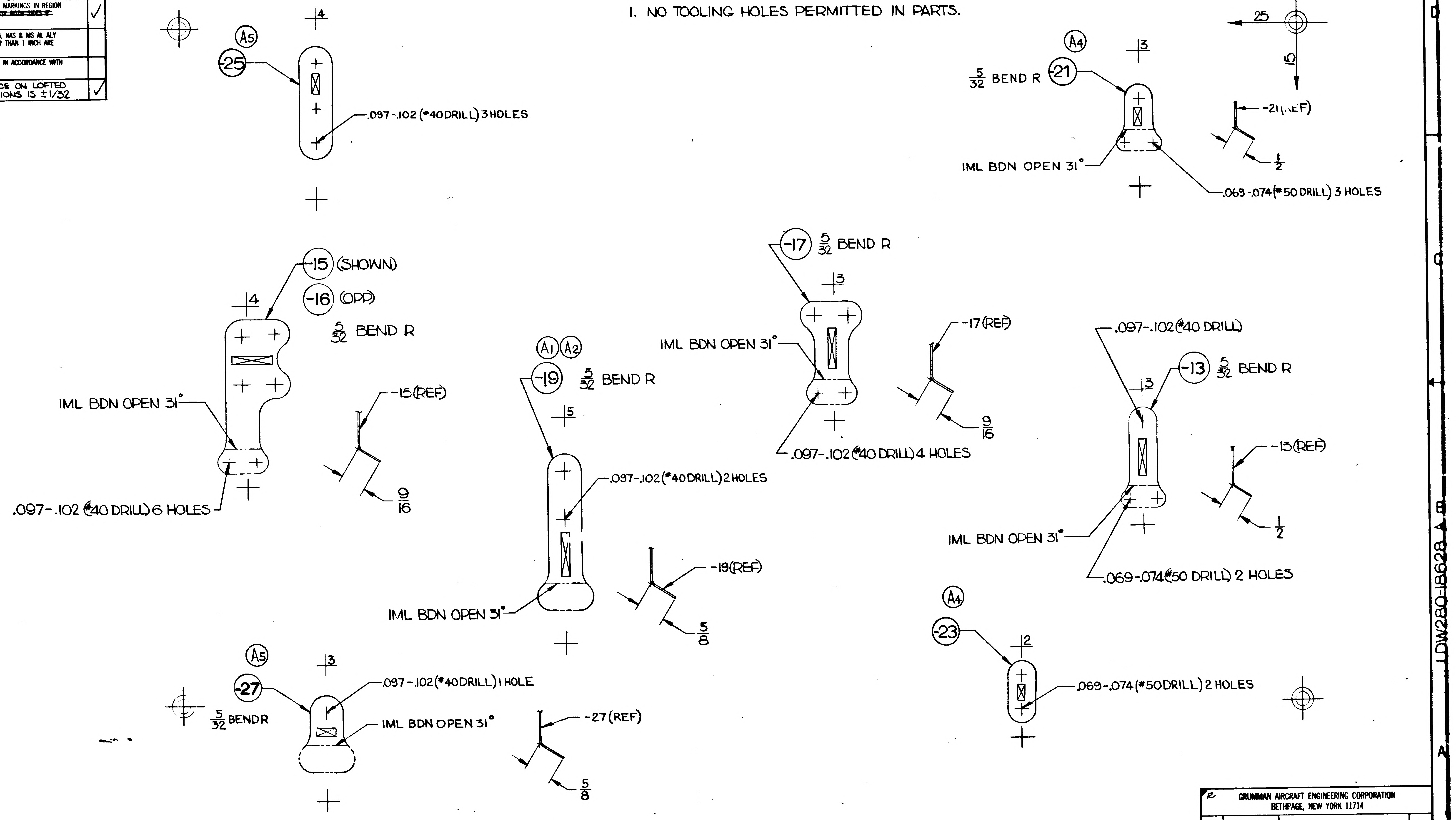
NAS 9-1100

TRAN O.K.
T.S. 8-19-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
A5
-25
4
.097-.102 (#40 DRILL) 3 HOLES
A4
5/32 BEND R
-21
3
-21 (REF)
1/2
IML BDN OPEN 31°
.069-.074 (#50 DRILL) 3 HOLES
-15 (SHOWN)
-16 (OPP)
5/32 BEND R
4
IML BDN OPEN 31°
-15 (REF)
9/16
.097-.102 (#40 DRILL) 6 HOLES
-17
5/32 BEND R
3
IML BDN OPEN 31°
-17 (REF)
9/16
.097-.102 (#40 DRILL) 4 HOLES
A1
A2
-19
5/32 BEND R
5
.097-.102 (#40 DRILL) 2 HOLES
-19 (REF)
5/8
IML BDN OPEN 31°
.097-.102 (#40 DRILL)
-13
5/32 BEND R
3
-13 (REF)
1/2
IML BDN OPEN 31°
.069-.074 (#50 DRILL) 2 HOLES
A4
-23
2
.069-.074 (#50 DRILL) 2 HOLES
A5
-27
3
5/32 BEND R
.097-.102 (#40 DRILL) 1 HOLE
IML BDN OPEN 31°
-27 (REF)
5/8

R	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714		
SIZE D	CODE IDENT NO. 26512	LDW280-18628	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

LDW280-18628 A

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615 ✓	A1	
-18620 ✓	A3	
-18627 ✓	A1	
-18628 ✓	B1	
-18630	A7	
-18631	A1	
-18638	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ L_D3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM
* [illegible]

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY C
DRAWING TITLE SEE DWG
DRAWING NO. LEO 280
EO NO. 1346

052269
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280 EO NO. 1555
CONTROL INFO NO. LDW280B 8122

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18610	SEE DWG	A4
✓ 611		A3
✓ 612		A3
✓ 613		A4
✓ 614		A3
✓ 615		A2
✓ 620		A4
✓ 627		A2
628		B2
LDW280-18630	SEE DWG	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 39 & 40 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/15/69; 8-15-69 REL

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY							
DATE	7-29-69			7/29/69	8-2-69		
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

STRESS GROUP: N

PRIORITY: C

DRAWING TITLE: SEE DRAWINGS

DRAWING NO.: LEO 280

EO NO.: 1555

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18628
EO NO. B3
CONTROL INFO NO. LDW 280B 9807

REVISE M/B AS FOLLOW :

RESTRICT -15, -16 & -17 TO LM-5(35) THRU LM9(39) & DVT(70) EFF. WAS LM5(35) THRU LM14(44) & DVT(70), LTA-11 (23)

RESTRICT -25 & -27 TO LM5(35) THRU LM9(39) EFF. WAS LM5(35) THRU LM 14(44). LTA-11 (23)

REQMTS FOR LM10(40) THRU LM14(44) ON -13 14/MOD WAS 13/MOD. AND -21 & -23 4/MOD WAS 1/MOD N/A SAME

ADD N/A LDW280-66661 TO -23 EFF LM10(40) THRU LM14(44) REQMT 2/MOD.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ / LCD 3994 PKG 92 (5)

REASON FOR EO: DESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE THE EXTENDED TANKS

DESCRIPTION OF EO: RESTRICTED -15, -16 & -17 TO LM5 THRU LM9 & DVT(70) BY REMOVING LM10-LM14 & LTA-11 EFF. AND -25 & -27 TO LM5 THRU LM9 BY REMOVING LM10-LM14 & LTA-11 EFF. REQMTS FOR LM10-LM14 ON -13 14/MOD WAS 13/MOD AND -21 & -23 4/MOD WAS 1/MOD. ADDED N/A LDW280-66661 TO -23 LM10-LM14 2/MOD

GAEC EO RELEASE: 2-17-70, 2/19/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44)	
		LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	2-5-70	2/17/70		2/9/70	2/16/70		2/16/70	2/18/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: CLIP-D/S-LOWER THERMAL SHIELD SPT
DRAWING NO. LDW280-18628
EO NO. B3

CDR 2-20-70
ISSUED BY G CHAN X86046/G. HANSMANN
SECTION VDI
GROUP NO. 335
PL 25

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18628

EO NO. B4

CONTROL INFO NO. LM-5-23280

IN MOD BLK FOR -21 & -23:

N/A LDW280-66663 LM10 THRU 13

REVISE: QTY: (3) WAS (4)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994

REASON FOR EO: TO REMOVE INTERFERENCE WITH FUEL BRACKET, QUAD III

DESCRIPTION OF EO: IN M/B FOR -21 & -23 : N/A LDW280-66663, LM10 THRU 13 REVISED QTY (3) WAS (4)

GAEC EO RELEASE: 9/22/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40)	
		THRU 13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	9-21-70			9/16/70	KC 9/9/70	9-9-70	9/21/70	9/10/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S - FITH - REM. BASE HEAT SHIELD	LDW280-18628	B4

ISSUED BY DON RAGAS / K. CHILDS SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18630 A

PART NO. LDW280-18630-5-2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60650	LTA-11(23)	1
LM	LDW280-23650	LM-8(38)	1
LM	↕	LM-7(37)	1
LFM 380		TM-5/R(65)	1
LFM 380		LM-6(36)	1
LFM 380	LDW280-23650	LM-5(35)	1

PART NO. LDW 280-18630-5-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23650	LM-6(36)	1

PART NO. LDW280-18630-9

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23650	TM-5/R(65)	1

PART NO. LDW 280-18630-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23650	QUAL. TEST(72)	1
LM	LDW280-23650	LM-5(35)	1

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	3.00	4.00			
REV	A	A	A	A	A	A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL ᴵᴰ INFO	
LAST DASH NO. USED	-25	PRIM NO. 207	LK001 ME-1A-1/23/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ± .010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD2011, 3128, 3075 CCA586 CCA663

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	T MACAULAY	RELIABILITY	
LAYOUT BY	A. RICHER	MATERIALS	AF 8/30/68 E. Hanken 8/30/68
CHECKED BY	Ben Mag 8-27-68	THERMO	8/30/68
GRP LEADER	J. Thorgman 8-30-68		
VEH DES INT	8/30/68		
STRUCTURES		PROJ ENGR	8/30/68
STRUCTURES	WJH 8/30/68	REL GROUP	Bauman 9-4-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

HANDLE ASSEMBLY
DESCENT STAGE, QUAD IV
EQUIP STOWAGE RELEASE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18630	A
SCALE NONE		SHEET 1.00 OF 6	

ENG 77.1 12-65

CDR 8/28/68

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00				✓		EO A1 LCD 2011 CCA 668 LCD 3128 LCD 3075 CCA 586	REMOVED -1 & -3 ADDED 1/8 DIM.(2). REMOVED NOTE 7 "ANNEALED CONDITION PERMISSIBLE IN AREA OF WELD". REMOVED "T62" & "88" FOR -11 & -13, ADDED -5 & -7. ADDED NOTE 10. ADDED "ROOM TEMPERATURE CURE OPTIONAL" TO NOTE 9. ADDED TO NOTE 5 "DYE PENETRANT INSPECT". ADDED ALODINE DATA IN FLD/DWG. IN FLD/DWG, .463 (REF) WAS .463, 1.563 - 1.688 WAS 1.631, 1/8 WAS .125, .938 - 1.063 R WAS 1.00 R (1 PLACE -11 & 4 PLACES -13), ADDED "THRU", 1.906 - 1.969 WAS 1.940, 45° WAS 45° (REF), ADDED 3.188 - 3.312; 3.250 - 3.500 (INSPECTION INFORMATION FOR -7) WAS 3.313 - 3.438; 6.000 - 6.250 (INSPECTION INFORMATION FOR -7) WAS 6.063 - 6.188; WELD SYMBOL SPEC. WAS "SEE NOTE 5". ADDED REVOLVED VIEW & ".016 MAX. WELD PROTRUSION (TYP.)". FOR -11 & -13 "PROCESS SYM." "NONE" WAS "T81/T62", "FINISH NO" "NONE" WAS "88". (-7 MAY BE MADE FROM -3) ADDED SHEET 1.10	LM-5 THRU LM-15 TM-5/R QUAL. TEST	NOTED		MICHAEL KRANT JULY 3, 1969 N.D.		
	2	1.00 2.00 3.00				✓		EO A2 LCD 3075 CCA 586	FOR TM-5/R, REMOVED -5, ADDED -9. ADDED -15, -17, -19 AND NOTE IN ZONE 6C: "ON -15, ... AREA". REVISED NOTES 5, 8 & 9 TO AGREE WITH LATEST DASH NOS	TM-5/R		-5, -7 -11, -13			
	3	2.00 3.00				✓		EO A3 LCD 3075 CCA 586	ON -9 LDW280M18054-11-1 WAS LDW280M18054-11	TM-5/R	✓				
	4	2.00				✓		EO A4 LCD 3128 CCA 668 LCD 2011 ECPA070E	ON -5 LDW280M18054-11-1 REPLACED LDW280M18054-11	LM-5 THRU LM-15 QUAL TEST	✓				

CHG APPROVED

LTR	GROUP LDR	V. D. I.	STRUCT	MATL'S	THERMO
A					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18630	A

SCALE NONE SHEET 1.10 ④

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	5	1.00 1.11 2.00 3.00		LFM 380		✓		EO A5 LCD 3829	RESTRICTED -5 TO LM-5(35), LM-7(37) THRU LM-15(45) & QUAL TEST(72) BY REMOVING LM-6(36). ADDED -5-1 (-5-1 MAY BE MADE FROM -5) ADDED SHEET 1.11	LM-5 LM-6	NOTED		M. KRANT 7-3-69		
	6	1.00 2.00 3.00 4.00		LFM 380		✓		EO A6 LCD 3829 ECP A113	IN FLD/DWG. & B/M ADDED -5-2 REPLACING -5-1 & -5. ADDED -21, -23 & -25 REPLACING -7, -11 & -13 RESPECTIVELY. RESTRICTED -5-1 TO LM-6(36) WAS EFF. LM-5 LFM 380 & LM-6. RESTRICTED -5 TO LM-5 & QUAL TEST(72) WAS EFF. : LM-5, LM-7 THRU LM-15 & QUAL TEST(72) & NOTED. REVISED NOTE NO 5 TO ADD -21 & -23. REVISED NOTE #8 TO ADD -25. REVISED NOTE #9 TO ADD LDW280M18054-13 & -23 TUBE. (-5-1 MAY BE REWORKED INTO -5-2) ADDED SH. 4.00	TM-5/R LM-5 THRU LM-15	NOTED				
	7	1.00				✓		LEO 280-1346 LCD 3587 CCA 1821	DELETED LM-15 (45) EFF FROM LDW280-18630-5, & -5-2	LM-15		-5 -5-2			
	8	1.00				✓		LEO 280-1555 LCD 3890	ON -5-2 ADDED LTA-11(23) REQUIREMENTS	LTA-11	NOT	REQ'D	M. KRANT 1-19-69		
	9	1.00				✓		LEO 280-1787 LCD 3994	FOR -5-2 N/A LDW280-60650 WAS LDW280-23650 FOR LM-10(40) THRU LM-14(44) AND LTA-11 (23) EFF.	LM-10 THRU LM-14 LTA-11	✓				
	10	1.00		Ⓡ		✓		EO A10 LCD 5383	FOR -5-2 EFF. WAS LM-5(35) & LM-6(36) LFM380, LM-7(37) THRU LM-14(44), TM-5/R (65) & LTA-11(23)	LM-9 THRU LM-14		-5-2			

CHG APPROVED LTR	GROUP LDR	V.D.I.	STRUCT	MATL'S	THERMO					
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18630	A
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

-21	-5-2	-5-1	-15	-9	-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	
	A/R	A/R		A/R		A/R		GT835 P-8	E	TAPE	GRUMMAN STD.						
								MS20470DD4	E	RIVET	STD PART						
	1	1						LDW280M18054-13	E	PIN	SEE DWG.						
				1		1		LDW280M18054-11H	E	PIN	SEE DWG.						
1								LDW280-18630-25	E	TUBE	AL ALLOY TUBING	LSM14-2009	2219	1/2 OD × .040	NONE	76	
1								-23	E	TUBE		LSM14-2009	2219	1/2 OD × .040	NONE	76	
			1					-19	E	TUBE		WW-T-700/6	6061	1/2 OD × .058 × 6 1/8	T6		
			1					-17	E	TUBE		WW-T-700/6	6061	1/2 OD × .058 × 17 1/2	T6		
					1			-13	E	TUBE		LSM14-2009	2219	1/2 OD × .040 × 6 1/8	NONE	NONE	
					1			LDW280-18630-11	E	TUBE	AL. ALLOY TUBING	LSM14-2009	2219	1/2 OD × .040 × 17 1/2	NONE	NONE	
	1							LDW280-18630-21	E	TUBE ASSY.	(WELDED)			T62 &	NOTE 5	76	
								-5-2	E	HANDLE ASSY					NOTE 9	NOTE 3&6	
								-5-1	E	HANDLE ASSY.					NOTE 9	NOTE 3&6	
				1				-15	E	TUBE ASSY.	(WELDED)			T62 &	NOTE 5		
								-9	E	HANDLE ASSY.					NOTE 9	NOTE 3&6	
		1				1		-7	E	TUBE ASSY	(WELDED)			T62 &	NOTE 5	76	
								LDW280-18630-5	E	HANDLE ASSY					NOTE 9	NOTE 3&6	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP-14-9010
						T62	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18630	A
SCALE NONE			SHEET 2.00

④

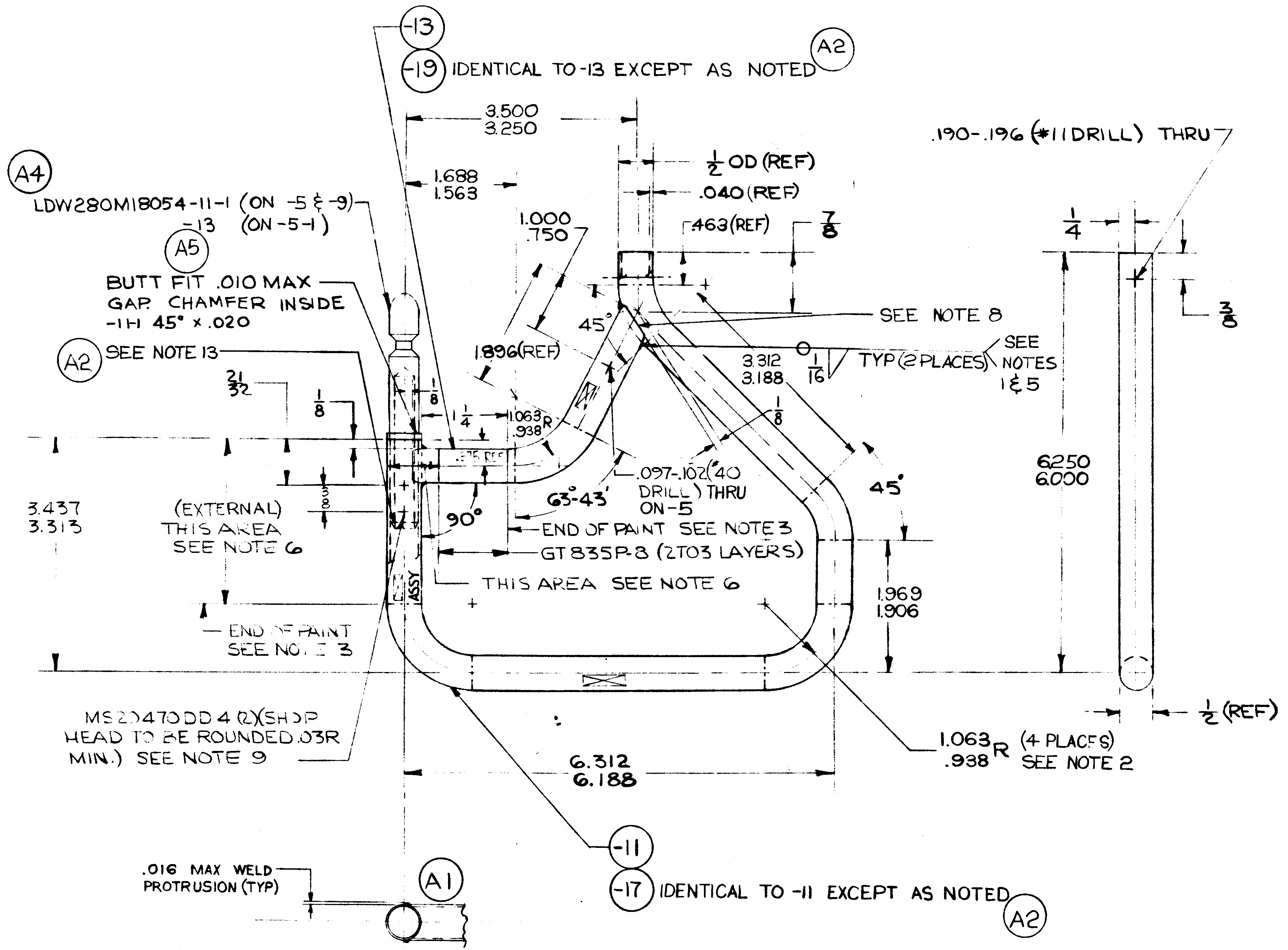
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18630 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE ~~BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	



-13
-19 IDENTICAL TO -13 EXCEPT AS NOTED
A2
3.500
3.250
1.688
1.563
A4
LDW280M18054-11-1 (ON -5 & -9)
-13 (ON -5-1)
A5
BUTT FIT .010 MAX
GAP. CHAMFER INSIDE
-1-1 45° x .020
A2 SEE NOTE 13
21/32
1/8
1/8
1 1/4
1.000
.750
1.896 (REF)
1.063
.938 R
45°
1/2 OD (REF)
.040 (REF)
.463 (REF)
7/8
SEE NOTE 8
3.312
3.188
1/16
TYP (2 PLACES)
SEE NOTES 1 & 5
1/8
.097-.102 (#40 DRILL) THRU ON-5
63°-43'
90°
3/8
3.437
3.313
(EXTERNAL) THIS AREA SEE NOTE 6
END OF PAINT SEE NOTE 3
GT835P-8 (2 TO 3 LAYERS)
THIS AREA SEE NOTE 6
ASSY
END OF PAINT SEE NOTE 3
45°
1.969
1.906
.190-.196 (#11 DRILL) THRU
1/4
3/8
6.250
6.000
1/2 (REF)
MS20470DD4 (2) (SHOP HEAD TO BE ROUNDED .03R MIN.) SEE NOTE 9
6.312
6.188
1.063
.938 R (4 PLACES) SEE NOTE 2
-11
-17 IDENTICAL TO -11 EXCEPT AS NOTED
A2
.016 MAX WELD PROTRUSION (TYP)
A1

LDW280-18630-5 ASSY. (A1)
-7 ASSY. (WELDED)
-9 ASSY, IDENTICAL TO -5 EXCEPT AS NOTED (A2)
-15 ASSY, (WELDED) IDENTICAL TO -7 EXCEPT AS NOTED
-51 ASSY, IDENTICAL TO -5 EXCEPT AS NOTED (A5)

NOTES:

1. CREW HAZARD: PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL SHARP EDGES & BURRS.
2. FLATNESS IN AREA OF TUBE BEND SHALL NOT EXCEED 15 PERCENT (THIS IS NOT A FLUID SYSTEM ITEM).
3. FINISH 401-F1 YELLOW (LSM-14-4405) PER LSP-14-4503, IN AREA INDICATED.
4. NO TOOLING HOLES PERMITTED IN PARTS.
5. WELD -11 & -13, -17 & -19, -23 & -25 PER LSP-14-6201, STANDARD NO. 3, DYE PENETRANT INSPECT.
6. APPLY EPOXY POLYAMIDE PRIMER MIL-P-23377 PER LSP-14-4305.
7. ~~ANNEALED CONDITION PERMISSIBLE IN AREA OF WELD~~
8. CUT -13, -19 & -25 TO MATCH O.D. OF -11, -17 & -23. (2 PLCS. EA.).
9. FILL VOID BETWEEN LDW280M18054-11, -11-1, -13 & I.D. OF -11, -17 & -25 TUBE WITH EPON 934 & IMMEDIATELY INSTALL FASTENERS. FILLET BOTH HEADS TO TUBE WITH EPON 934 & THEN CURE ASSY. (APPLY EPON 934 PER LSP14-22500 CURE RANGE (1) ONE.) ROOM TEMPERATURE CURE OPTIONAL.
10. -7, -15, -21 SHALL BE FLAT WITHIN .125
11. ON -15, DRILL TO FIT LDW280M18054-11-1 2 INCH MAX DEPTH. MIN REMAINING WALL THICKNESS TO BE .040 IN THIS AREA.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18630	A
SCALE FULL		SHEET 3 OF 3	

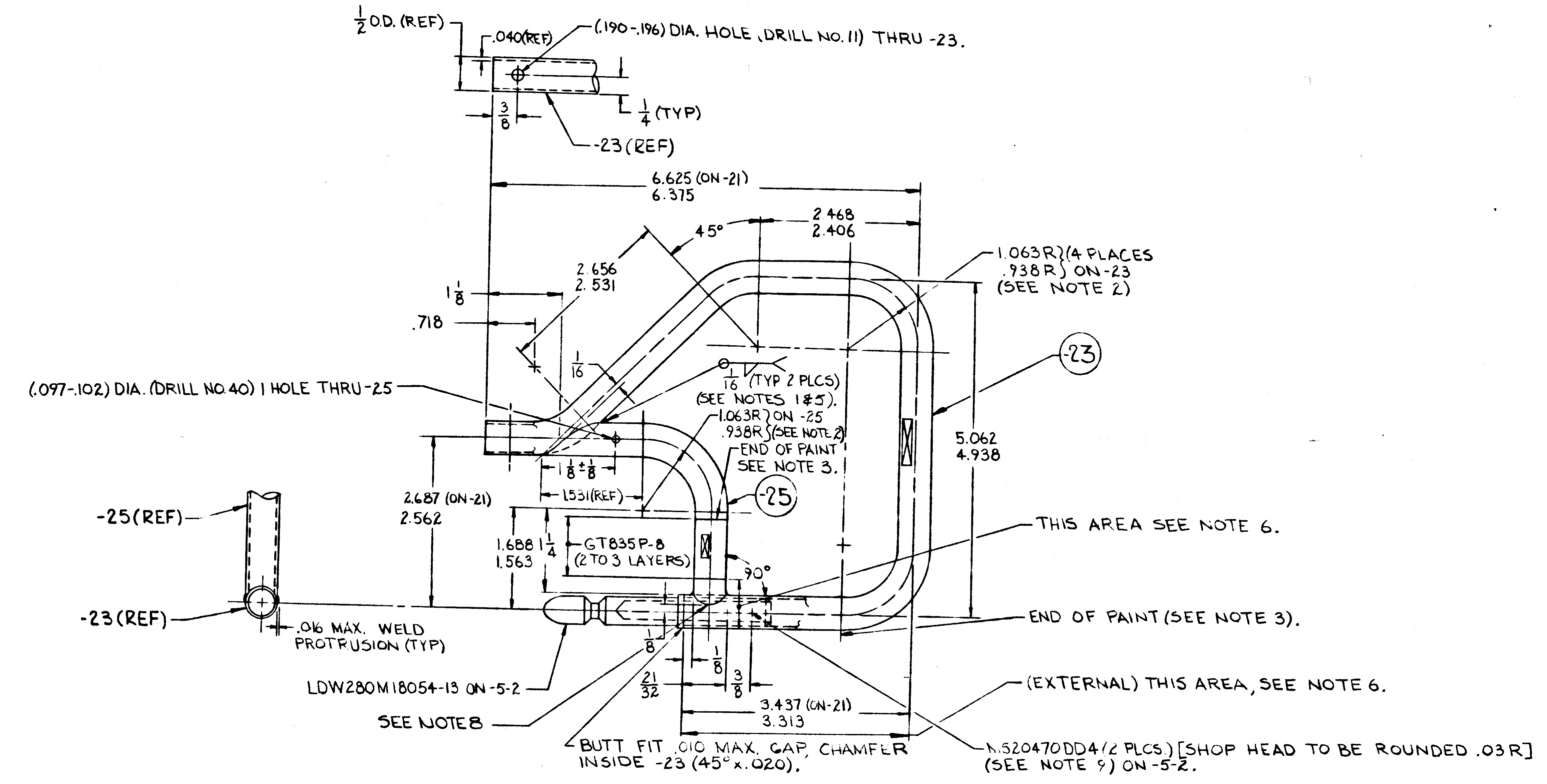
LDW280-18630A

01

NAS 9-1100

~~SUPPLEMENTARY DATA~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED ✓ APPLY TO THIS DWG.~~

~~MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.~~	
~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~	
~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~	
~~INSTALL RIVETS IN ACCORDANCE WITH~~	


$\frac{1}{2}$ O.D. (REF)
.040(REF)
(.190-.196) DIA. HOLE (DRILL NO. 11) THRU -23.
$\frac{1}{4}$ (TYP)
$\frac{3}{8}$
-23 (REF)
6.625 (ON-21)
6.375
45°
2.468
2.406
2.656
2.531
$1\frac{1}{8}$
.718
$\frac{1}{16}$
1.063R (4 PLACES
.938R ON-23
(SEE NOTE 2)
-23
$\frac{1}{16}$ (TYP 2 PLCS)
(SEE NOTES 1 & 5).
1.063R ON -25
.938R (SEE NOTE 2)
END OF PAINT
SEE NOTE 3.
(.097-.102) DIA. (DRILL NO. 40) 1 HOLE THRU -25
$1\frac{1}{8} \pm \frac{1}{8}$
1.531(REF)
-25
5.062
4.938
-25(REF)
2.687 (ON-21)
2.562
1.688
1.563
$1\frac{1}{4}$
GT835P-8
(2 TO 3 LAYERS)
90°
THIS AREA SEE NOTE 6.
-23(REF)
.016 MAX. WELD
PROTRUSION (TYP)
END OF PAINT (SEE NOTE 3).
$\frac{1}{8}$
$\frac{1}{8}$
$\frac{3}{8}$
$\frac{21}{32}$
LDW280M18054-13 ON -5-2
(EXTERNAL) THIS AREA, SEE NOTE 6.
3.437 (ON-21)
3.313
SEE NOTE 8
BUTT FIT .010 MAX. GAP, CHAMFER
INSIDE -23 (45° x .020).
MS20470DD4 (2 PLCS) [SHOP HEAD TO BE ROUNDED .03R]
(SEE NOTE 9) ON -5-2.

Ⓐ6 LDW280-18630-21 ASSY (WELDED)
LDW280-18630-5-2 ASSY

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18630	A
SCALE FULL		SHEET 4.00	

ENG 73.3 REV 5-67

LDW280-18630 A

01

NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1886

CONTROL INFO NO. LDW280C0490

REMOVE LTA-11 (23) EFF FROM NOTED DASH NO's OF THE FOLLOWING DWGS

	DWG NUMBER (*)	CHANGE NUMBER	DWG NOMENCLATURE
✓	LDW280M17771-1	B5	SEE DWG
✓	LDW 280-53645-45 -47 -48	B5	↑
✓	LDW280-18886-11	A3	
✓	LDW280-18630-5-2	B1	
	LDW 280-17915-19 -21	B4	↓
	LDW 280-17725-1	F4	SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 92 PG 16

REASON FOR EO: DETAIL PARTS NOT REQD ON NEXT HIGHER ASSY

DESCRIPTION OF EO: REMOVED LTA-11 (23) REQMTS FROM (*)

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-11 (23)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PGT				NM		PGT	
DATE	5-22-70			5/22/70	5/26/70		5-27-70	5/27/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1886

5/25/70

ISSUED BY J. LANG / G. HANSMANN X87222 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

PART NO.
LDW280-18631-23 & 25

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14 (44)	1EA
		LM-13 (43)	1EA
		LM-12 (42)	1EA
		LM-11 (41)	1EA
LM	LDW280-60602	LM-10 (40)	1EA

PART NO.
LDW280-18631-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60650	TM-11 (50)	1
		LTA-11 (23)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60650	LM-10 (40)	1

PART NO.
LDW280-18631-17 (CON'T)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60602	LM-10 (40)	2

PART NO. LDW280-18631-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60534	LTA-3DR/1 (460)	1
		LTA-11 (23)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60534	LM-10 (40)	1
	LDW280-54534	LM-9 (39	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
LM	LDW280-54534	LM-5 (35	1

PART NO.
LDW280-18631-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60650	TM-11 (50)	2
		LTA-11 (23)	2
		LM-14 (44	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60650	LM-10 (40)	2

PART NO. LDW280-18631-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60650	TM-11 (50)	1
		LTA-11 (23)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60650	LM-10 (40)	1
	LDW280-23650	TM-5/R (65)	1
		DVT (70)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
LM	LDW280-23650	LM-5 (35)	1

WORK PKG FUNCTION NO. 110 (6)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	-	GRUMMAN REL INFO A
LAST DASH NO. USED	-25	PRIM NO. 207 · JC 0011 MP-1 9/4/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ~ ±.020 ~ ± 1/2

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2011, (CCA668-3) ✓	

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G. ENGEL 8-28-68	RELIABILITY	
LAYOUT BY	J. CORTELYOU 8/30		
CHECKED BY	J. BELL 8/30/68		
GR. LEADER	Thoyusen 8-30-68		
VEH DES INT	8/30/68		
STRUCT		PROJ ENGR	Busateri 8/30
STRUCT	wjh 8/30/68	REL GROUP	Mass 8/30
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - MODULAR EQUIP.
STOWAGE ASSY - RELEASE MECH

SIZE	CODE IDENT NO.		
B	26512	LDW280-18631	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

LCD 3075 (CCA586) ✓
LCD 3128

CDR · 8/28/68

LDW280-18631 A

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 1.10				✓		LE0280-1346 LCD3587 CCA 1821	DELETED LM-15 EFF FROM -11 & -13. ADDED SH. 1.10	LM-15		-11 -13	GROSSO 4-15-70	4/16/70	
	2	1.00				✓		LE0280-1563 LCD3890	ON -11 & -13 ADDED LTA-11	LTA-11	NOT	REQD			
	3	1.00				✓		LE0280-1684 LCD 3994	FOR-11, N/A LDW280-60534 WAS LDW280-54534 FOR LM-10 THRU LM-14 & LTA-11. ADDED LTA-3DR/1 EFF.	LM-10 THRU LM-14 LTA-11 LTA-3DR/1	✓				
	4	1.00				✓		LE0280-1788 LCD 3994	FOR -13, REMOVED LM-10 THRU LM-14 & LTA-11	LM-10 THRU LM-14 LTA-11		-13			
	5	1.00, 2.00 3.00				✓		EO A5 LCD 3994	ADDED -15	LM-10 THRU LM-14 LTA-11 TM-11	NOT	REQD			
	6	1.00, 2.00 3.00				✓		EO A6 LCD 3994	ADDED -17 & -19 & NOTE 2						
	7	1.00, 2.00 3.00				✓		EO A7 LCD 3994	REMOVED -15. REINSTATED -13			-15			
	8	1.00, 2.00 3.00				✓		EO A8 LCD 3994	ADDED -21. REMOVED -19			-19			
	9	1.00				✓		LE0280-1868 LCD 5322	FOR -13 & -17 ADDED REQUIREMENTS FOR LDW280-60602	LM-10 THRU LM-14	✓				
	10	1.00, 2.00 3.00		®		✓		EO A10 LCD 3994	ADDED -23 & -25. REMOVED N/A LDW280-60602 FROM -13. (-23 & -25 MAY BE MADE FROM -13) J.V.		NOTED				

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT
A				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18631	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18631-25	E	STRAP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 X 2 X 9	NONE	88	
		LDW280-18631-23	E	STRAP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 X 2 X 8	NONE	88	
		LDW280-18631-21	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.093 X 1 X 3	T6	NOTE	2
		LDW280-18631-17	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075	.063 X 1 X 3	T6	NOTE	2
		LDW280-18631-13	E	STRAP	AL ALLOY SH	QQ-A-250/4	2024-T3	.020 x 2 x 10	NONE	88	
		LDW280-18631-11	E	CLIP	AL ALLOY SH	QQ-A-250/4	2024-O	.063 x 2 x 3	T42	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	MIL-A-8625
T42	AL HEAT TREAT	MIL-H-6088
T6	AL. HEAT TREAT	MIL-H-6088
126	DRY LUBE	LSP-14-10300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18631	A

Ⓐ

SCALE NONE

SHEET 2.00

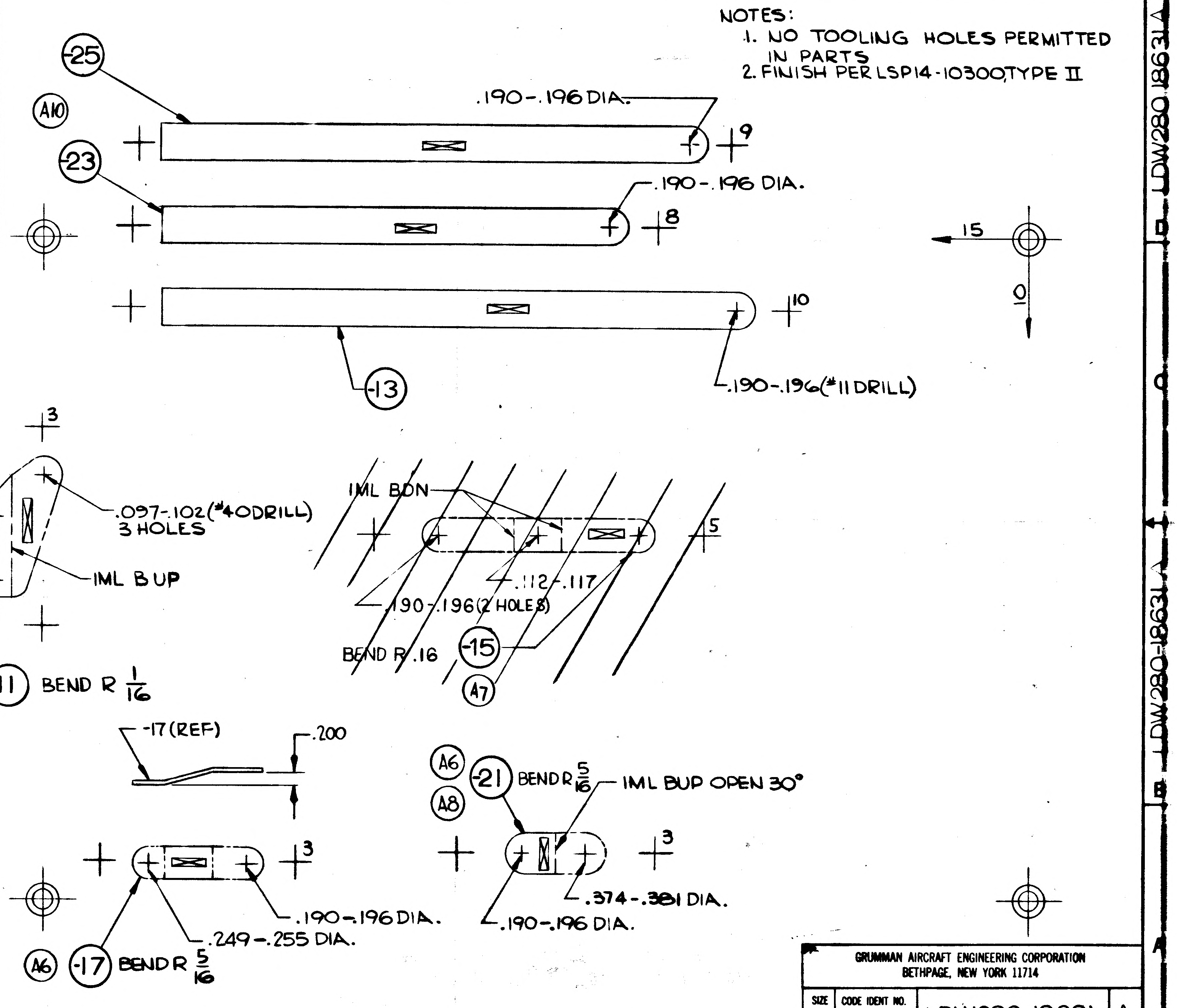
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBB[illegible] [illegible]AMP PART NUMBER AND ALL OTH[illegible] [illegible]ARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FINISH PER LSP14-10300,TYPE II



-25
A10
.190-.196 DIA.
9
-23
.190-.196 DIA.
8
15
0
10
-13
.190-.196(#11 DRILL)
3
.097-.102(#40 DRILL) 3 HOLES
IML B UP
-11 BEND R 1/16
IML BDN
5
.112-.117
.190-.196(2 HOLES)
BEND R .16
-15
A7
-17 (REF)
.200
A6
A8
-21 BEND R 5/16
IML BUP OPEN 30°
3
.374-.381 DIA.
.190-.196 DIA.
3
.190-.196 DIA.
.249-.255 DIA.
A6
-17 BEND R 5/16
LDW280-18631 A

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18631	A
SCALE FULL		SHEET 3.09	

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1878
CONTROL INFO NO. LDW280C0316

FOR DRAWINGS LISTED BELOW ADD M-7 MOCK-UP EFF.: FOR THE NOTED NEXT ASSY'S.

DRAWING NO.*	TITLE	MODULE	REQ'D/VEH	NEXT ASSEMBLY	EO NO.	
LDW280M18226-11	SEE DWG	M-7 (48)	2	LMU280-70150	A3	✓
LDW280-18923-11			1	LMU280-70150	A4	✓
LDW280-18780-15			1	LMU280-70152	A1	✓
LDW280-18780-11			1			
LDW280M17817-12			1	LMU280-70154	B5	✓
LDW280-18631-17			2	LMU280-70152	B1	✓
LDW280-18631-23			1			
LDW280-18631-25			1			
LDW280-60549-1			1	LMU280-70152	A4	
LDW280-60549-7			1			
LDW280-18781-13			2	LMU280-70157	A2	
LDW280-18781-15			1	LMU280-70152		
LDW280M18039-11			1	LMU280-70152	A6	
LDW280M18040-11			1	LMU280-70152	A8	
LDW280M18295-11			1	LMU280-70152	A1	
LDW280M18296-11			1	LMU280-70152	A1	
LDW280M18313-11	SEE DWG	M-7 (48)	1	LMU280-70152	A1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD5528 PKG 50

REASON FOR EO: M-7 TO BE USED FOR FUNCTIONAL CHECK OF 1/6 WEIGHT LRV DEPLOY.

DESCRIPTION OF EO: FOR * ADDED M-7 (48) REQMTS.

Ⓡ GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		M-7 (48)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQ'D

	APPROVED BY	DATE
VDI	RGT	4-16-70
SUPPORT		
RELIAB. GROUP		
GROUP LEADER		4/15/70
STRESS GROUP	WJR	4/17/70
LIAISON ENGRG		
PROJ ENGRG	RGT	4-17-70
GOSD		4/21/70

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1878

4-24-70
ISSUED BY C. LEBO X86048 SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280	EO NO. 1884
CONTROL INFO NO. LDW280C0386	

FOR ALL DWGS LISTED BELOW ADD LTA-11(23) EFF. FOR NOTED DASH NOS. & NEXT ASSY'S.

DWG. NO.	NEXT ASSY	DWG. NOMENCLATURE	CHANGE NO.
✓ LDW280-60602-1	LDW280-60509	SEE DWG.	A1
✓ -18631-17,-23,-25	LDW280-60602	↑	B2
-18780-11,-13,-15,-17,-18	↑		A2
-18781-11,-15,-17			A5
-60549-1,-7			A5
M17862-83			D1
M17804-23			B2
M18039-11			A8
M18040-11	↓	↓	A9
M18145-27	LDW280-60602	SEE DWG.	A7

QTY'S REMAIN THE SAME AS FOR LM-10(40).

* APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 5545 PKG 50

REASON FOR EO: DETAIL PARTS REQ'D FOR LTA-11(23) LRV DROP TESTS

DESCRIPTION OF EO: FOR(*) ADDED LTA-11(23) REQUIREMENTS

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RSH			[illegible]	WJK		RSH	[illegible]
DATE	5-22-70			5/22/70	5/22/70		5-22-70	5/22/70

GAEC EO RELEASE

PRIORITY C

DRAWING TITLE: NOTED

DRAWING NO. LEO 280

EO NO. 1884

5/22/70
ISSUED BY J. PEDERSEN/G. HANSMANN x87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1926
CONTROL INFO NO. LDW280C1333

FOR DRAWINGS(*) LISTED BELOW REMOVE LM-10(40) THRU LM-12(42)
REQMTS FOR NEXT ASSY NOTED (**)

DRAWING NO *	TITLE	NEXT ASSY **	CHANGE LTR	
LDW280M18295-11	SEE DRAWING	LDW280-60602	A3	✓
LDW280M18299-13	↕	↕	A2	✓
LDW280M18313-11	↕	↕	A3	✓
LDW280-18631-25	↕	↕	B3	✓
LDW280-18781-17	↕	↕	A9	
LDW280-60549-1-1	SEE DRAWING	LDW280-60602	A8	
LDW280-19028-15,16,17	SEE DWG	LDW280-60571	A2	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 5680 PK 56

REASON FOR EO: DETAILS NOT REQD FOR MANUAL DEPLOYMENT OF LRV

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-12(42) FOR N/A * *

MODEL	PROCURING ACTIVITY NO. EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LFM 619	LM-10(40)	
		LM-11(41) LM-12(42)	
LM			

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

APPROVED BY									GAEC EO RELEASE 3/11/71
DATE	3-8-71			3/8/71	3/9/71		3/10/71	3-11-71	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCP~~	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1926

ISSUED BY 3-12-71 G.BELEV~G.HANSMANN X87222 SECTION VEH DES INT GROUP NO. 0335 PL 025

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NAS 9-1100

LDW280-18638

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1 EA
↕	LDW280-54527	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-54527	LM-5(35)	1 EA
LM	LDW280-54526	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-54526	LM-5(35)	1 EA
LM	LDW280-54525	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-54525	LM-5(35)	1 EA
LM	LDW280-54524	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-54524	LM-5(35)	1 EA
PART NO. LDW 280-18638-5&-6		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1 EA
↕	LDW280-54700	LM-15(45)	4 EA
	↕	THRU	
LM		LM-6(36)	4 EA
LFM 200	LDW280-54700	LM-5(35)	4 EA
LDW 280-18638-11&-12			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	2
↕	LDW280-54700	LM-15(45)	8
	↕	THRU	
LM		LM-6(36)	8
LFM 200	LDW280-54700	LM-5(35)	8
PART NO. LDW 280-18638-9		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
↕	LDW280-54700	LM-15(45)	4
	↕	THRU	
LM		LM-6(36)	4
LFM 200	LDW280-54700	LM-5(35)	4
LDW 280-18638-7			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1 EA
↕	LDW280-23544	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-23544	LM-5(35)	1 EA
LM	LDW280-23543	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-23543	LM-5(35)	1 EA
LM	LDW280-23542	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-23542	LM-5(35)	1 EA
LM	LDW280-23541	LM-15(45)	1 EA
	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-23541	LM-5(35)	1 EA
PART NO. LDW280-18638-1,2&-3		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED ~

LAST DASH NO. USED -32

GRUMMAN REL'G INFO
PRIM NO. 207
LK(00') mP-16 [illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965 CCA 1235

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	GARDIANOS 8/22/68	RELIABILITY	
LAYOUT BY	A. MEVORAH	THERMO	D. Rudloff 8/27/68
CHECKED BY	D. Lass 8-23-68		
GRP LDR	Thorgusen 8-23-68		
VEH DES INT	J. Lusatri 8/26/68		
STRUCT	NM 8/28/68	PROJ ENGR	J. Lusatri 8/28/68
STRUCT	8/28/68	REL GROUP	J. Marsh
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP ASSY
- DESCENT STAGE
- THERMAL SHIELD SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18638 | ⊖

SCALE NONE | SHEET 1.00 OF 3

7.1 12-65

PKG2 SH10

CDR 092068

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NAS 9-1100

-12	-11	-9	-7	-6	-5	-3	-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
										NAS1097AD3	E	RIVET	STD PART						
1	1	1	1	1	1	1	1	1		NAS1067C08		NUT PLATE	STD PART						
1										LDW280-18638-32		CLIP	AL ALLOY SH	QQ-A-250/4	2024 T3	.040 × 2 × 4	NONE	88	
	1									-31						.040 × 2 × 4			
		1								-29						.032 × 2 × 2			
			1							-27						.032 × 2 × 2			
				1						-26						.032 × 2 × 3			
					1					-25						.032 × 2 × 3			
						1				-23						.032 × 2 × 3			
							1			-22						.032 × 2 × 4			
								1		-21		CLIP	AL ALLOY SH	QQ-A-250/4	2024 T3	.032 × 2 × 4		88	
										-12		CLIP ASSY						NONE	
										-11									
										-9									
										-7									
										-6									
										-5									
										-3									
										-2									
										LDW280-18638-1	E	CLIP ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18638

SCALE NONE | SHEET 200

ENG 77.2 7-65

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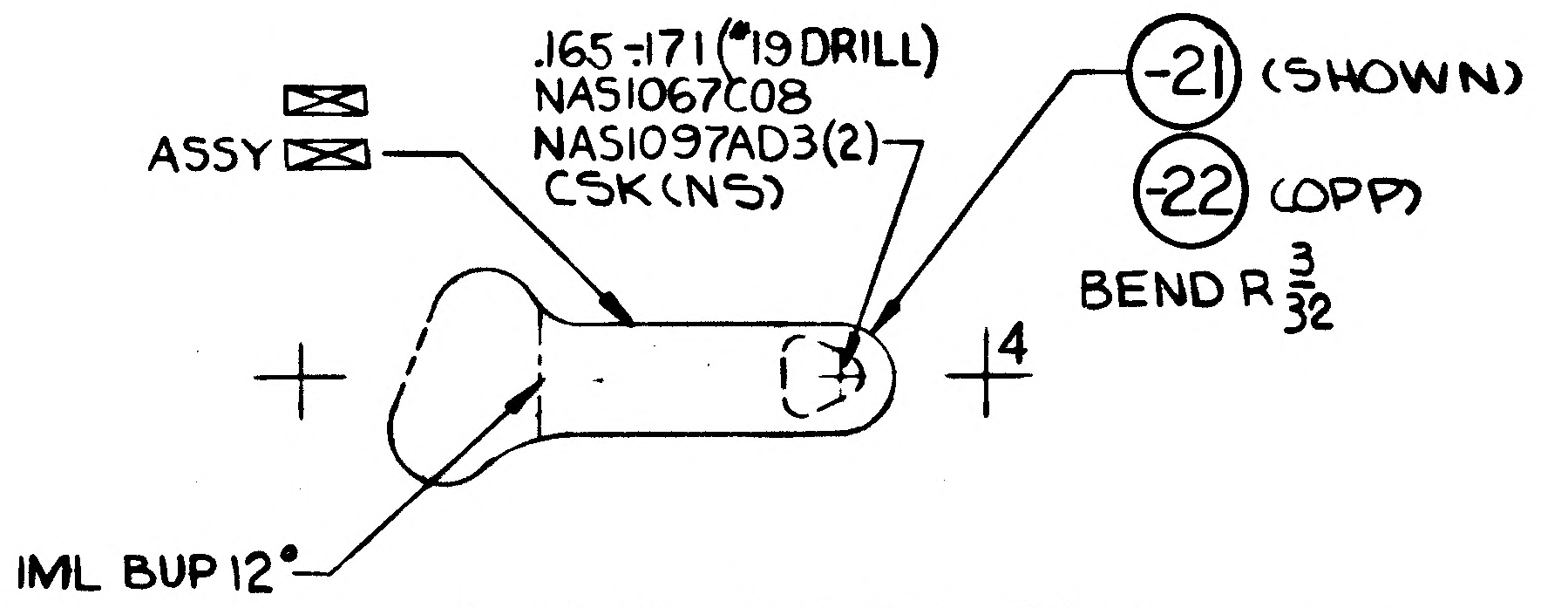
NAS 9-1100

LDW280-18638

TRAM O.K
T.S. 8-17-68

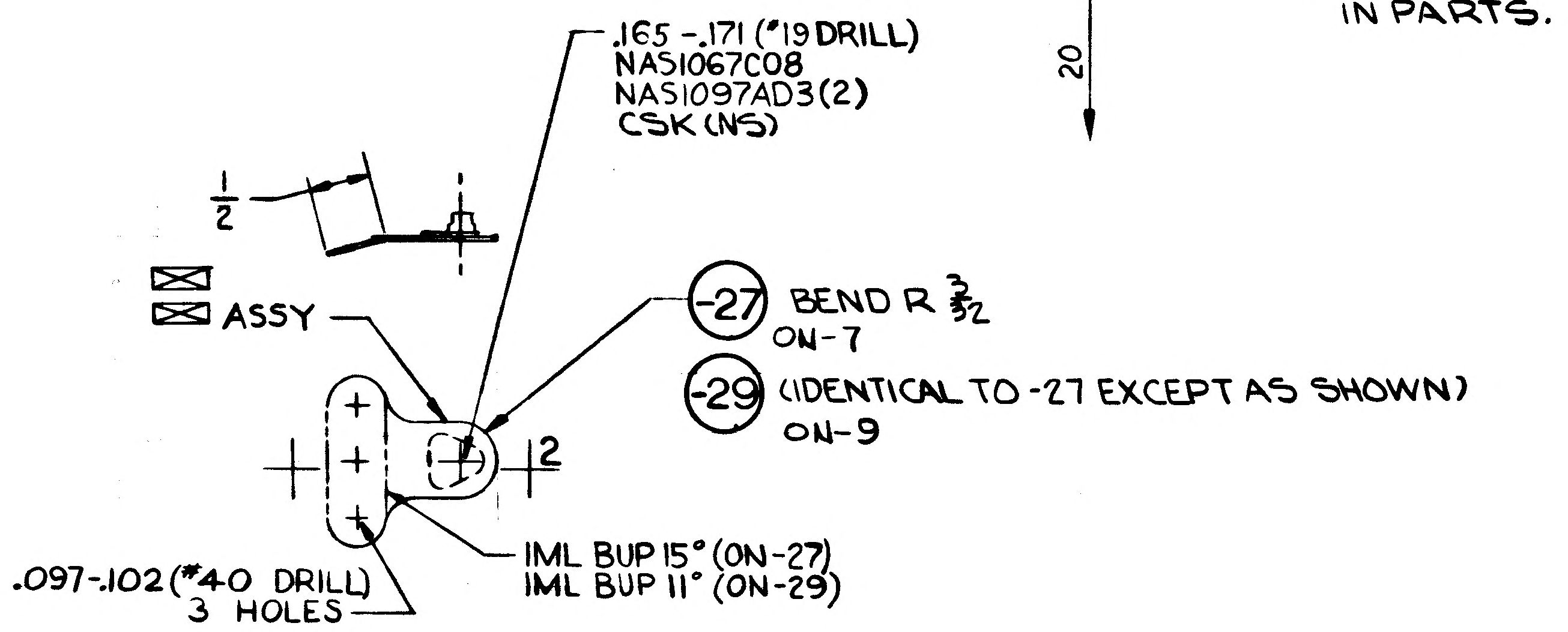
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH LSP 14-15302	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



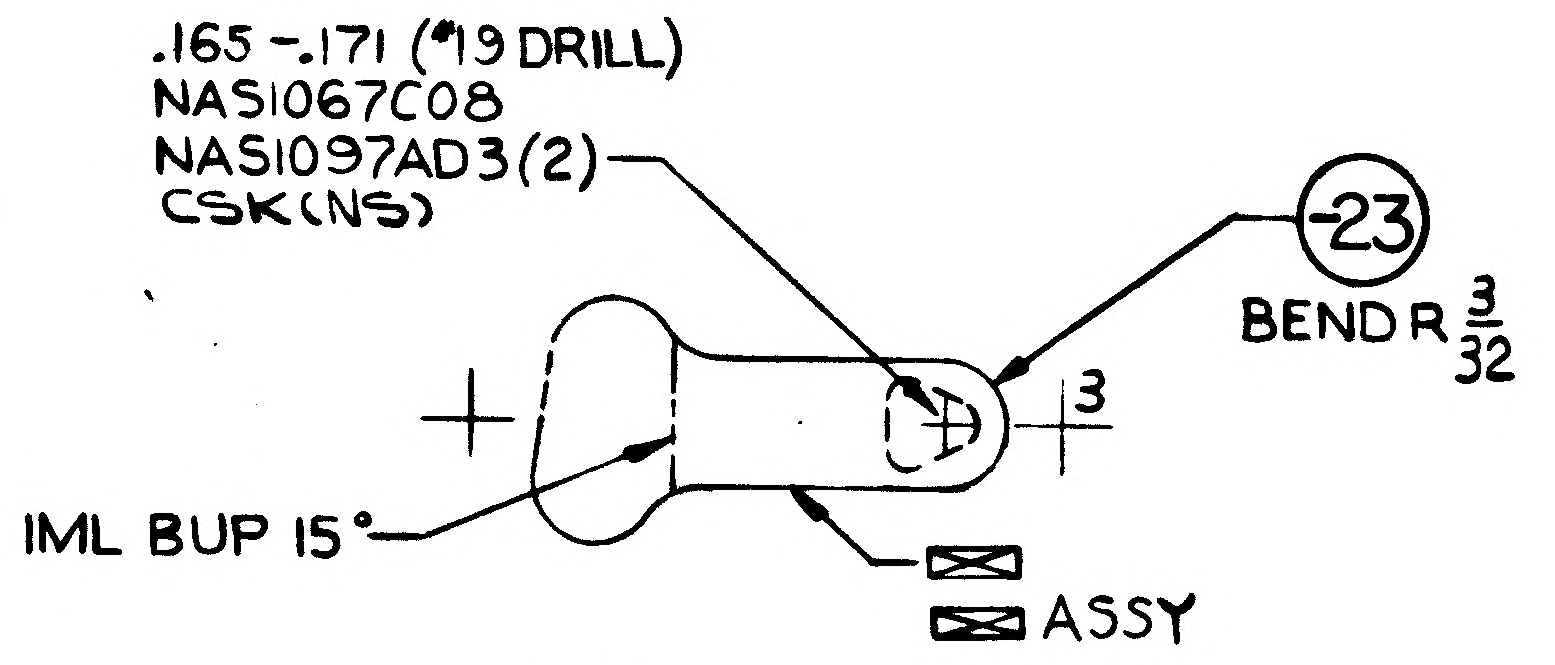
.165-.171 (#19 DRILL)
NAS1067C08
NAS1097AD3(2)
CSK (NS)
ASSY
-21 (SHOWN)
-22 (OPP)
BEND R 3/32
4
IML BUP 12°

LDW280-18638-1 ASSY (SHOWN)
-2 ASSY (OPP)



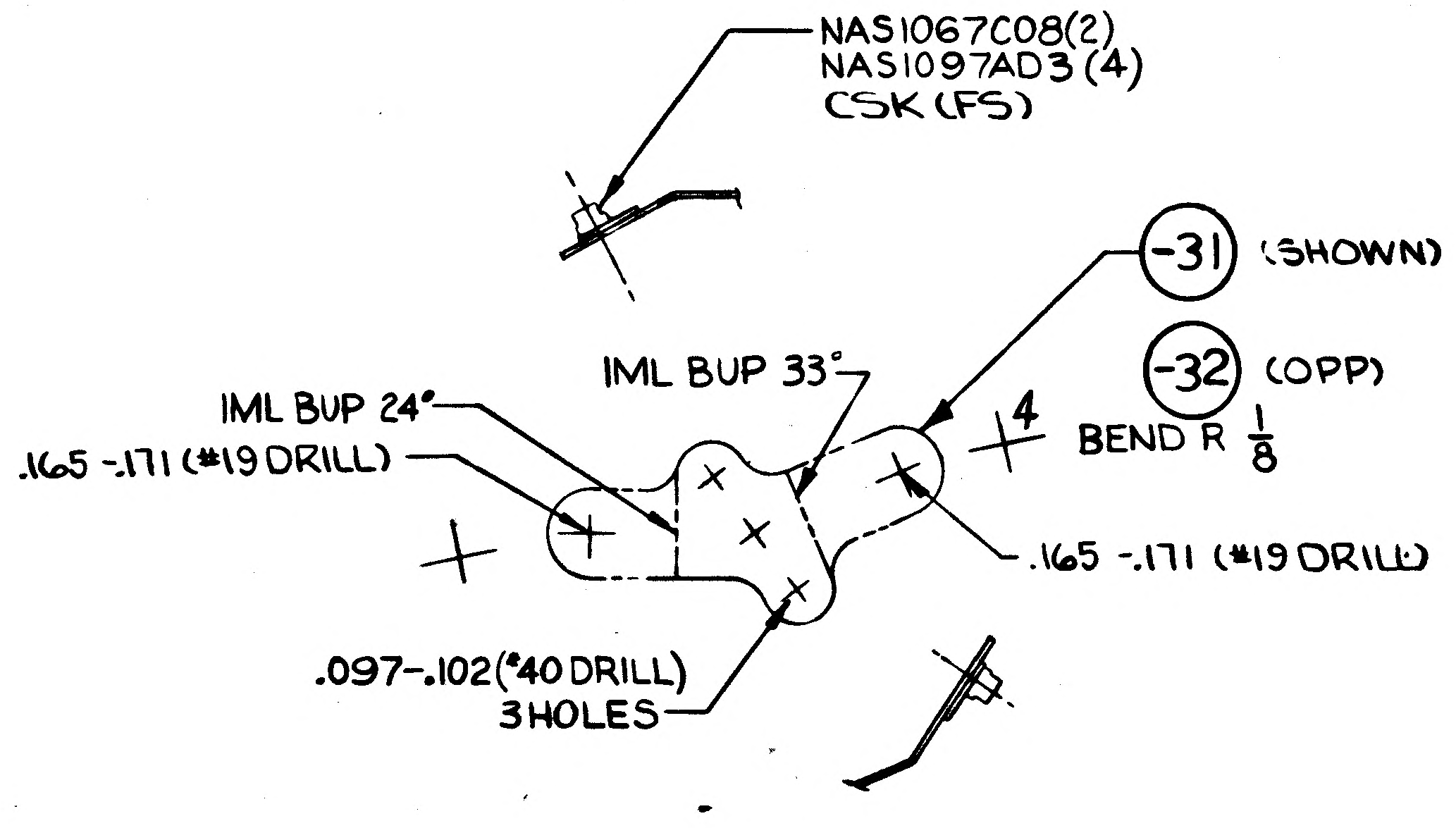
.165-.171 (#19 DRILL)
NAS1067C08
NAS1097AD3(2)
CSK (NS)
1/2
ASSY
-27 BEND R 3/32
ON-7
-29 (IDENTICAL TO -27 EXCEPT AS SHOWN)
ON-9
2
IML BUP 15° (ON-27)
IML BUP 11° (ON-29)
.097-.102 (#40 DRILL)
3 HOLES
20
20

LDW280-18638-7 ASSY
-9 ASSY (IDENTICAL TO -7 EXCEPT AS SHOWN)



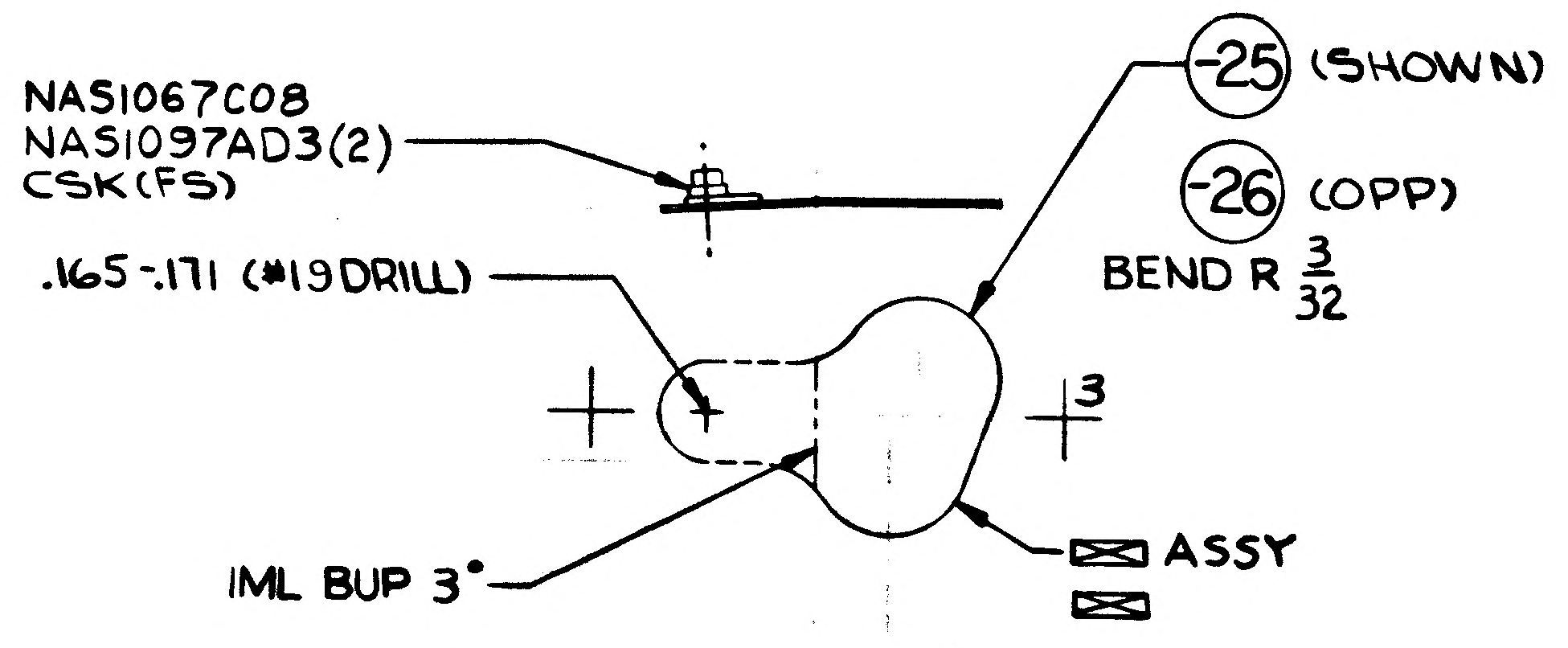
.165-.171 (#19 DRILL)
NAS1067C08
NAS1097AD3(2)
CSK (NS)
-23
BEND R 3/32
3
IML BUP 15°
ASSY

LDW280-18638-3ASSY



NAS1067C08(2)
NAS1097AD3 (4)
CSK (FS)
-31 (SHOWN)
-32 (OPP)
BEND R 1/8
4
IML BUP 33°
IML BUP 24°
.165-.171 (#19 DRILL)
.165-.171 (#19 DRILL)
.097-.102 (#40 DRILL)
3HOLES

LDW280-18638-11 ASSY (SHOWN)
-12 ASSY (OPP)



NAS1067C08
NAS1097AD3(2)
CSK (FS)
-25 (SHOWN)
-26 (OPP)
BEND R 3/32
.165-.171 (#19 DRILL)
3
IML BUP 3°
ASSY

LDW280-18638-5ASSY (SHOWN)
-6ASSY (OPP)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18638
SCALE FULL		SHEET 3.00

DWG 73.3 REV 3-67

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1212
CONTROL INFO NO. LDW280B6005

	CHG LTR	DWG NO. *	RESTRICT FOR USE ON	WAS USED ON
✓	A2	LDW280-18601 -19	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
✓	A1	LDW280-18638 -1,-2,-3,-5,-6,-7,-9,-11 & -12	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70), LM-5(35) LFM 200
	A1	LDW280-18656-1	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
	A1	LDW280-18662 -17 & -21	LM-6(36) THRU LM-15(45) LM-5(45) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
	A2	LDW280-66655 -1	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35)	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35), DVT-70

* FOR TITLE SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965 PKG #2 CCA# 1235 (5)

REASON FOR EO: BASE HEAT SHIELD QUALIFICATION TEST

DESCRIPTION OF EO: RESTRICTED EFF OF -\# BY REMOVING DVT-(70)

GAEC EQ RELEASE: C 11/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT-(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY									
DATE	11/7/68		11-7-68	11-7-68	11/7/68		11/7/68	11/1/68	
	VDI	SUPPORT	~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	DVD	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1212

CDR 11/13/68

ISSUED BY D.SHAPIRO/P.THORTJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1346	
CONTROL INFO NO. LDW280B7442			

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615 ✓	A1	
-18620 ✓	A3	
-18627 ✓	A1	
-18628 ✓	B1	
-18630 ✓	A7	
-18631 ✓	A1	
-18638 ✓	A2	
LDW280 -18639	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD3587 PKG 55 PG 5	CCA 1821 (5)		

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☑

APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GROUP~~

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1346

052869
ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT ~~GROUP NO.~~ 335 - 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1649
CONTROL INFO NO. LDW2 DB7768

FOR *: N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44), ADD LTA-11(23) & LTA-3DR/1(460) EFFECTIVITY FOR N/A LDW280-60541 (QTY REMAINS THE SAME AS THAT OF LM-10(40)).

PART NO. *	DWG NOMENCLATURE	CHANGE NUMBER
LDW280-17419-11,-12,-13,-14,-17	SEE DWG	B4
-17746-11	↑	A4
-17906-13		B3
~~-[illegible]-12~~		
-18066-11		A4
-18067-21 & -23		A5
-18638-1,-2,-3	↓	A3
	SEE DWG	
LDW280-18688-19	SEE DWG	B6

DETAIL SPEC EQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG. 57 1, 3, & 4 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR * N/A LDW280-60541 WAS LDW280-23541 FOR LM-10(40) THRU LM-14(44) & ADDED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: SUB 8-21-69 / * 8/29/69

MODEL	PROCURING ACTIVITY NO. FI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23)	
LM		& LTA-3DR/1(460)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	PST						
DATE	8-19-69			8/19/69	8/20/69		8/21/69 8/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1649

CDR: 10-31-69
ISSUED BY TIENKEN/THORJUSEN X87222 7-30-69 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18638 EO NO. A4
CONTROL INFO NO. LDW280 8774

FOR LDW280-18638-1, -2, & -3

N/A LDW280-60542 WAS LDW280-23542
FOR LM-10(40) THRU LM-14(44) ADD LTA-11 (23) &
LTA-3 D/R-1 (460) EFFECTIVITY FOR N/A LDW 280
60542 (QTY REMAINS THE SAME AS THAT OF
LM-10(40)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG. 54 Pg 1 & 4

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR -1, -2, & -3 N/A LDW280-60542 WAS LDW280-23542 FOR LM-10(40) THRU LM-14(44) & LTA-11 (23) & LTA-3 D/R-1 (460)

GAEC EO RELEASE: LAB 8-26-9; JK 9/5/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		
LM	LTA-11 (23)		
LM	LTA-3 D/R-1 (460)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					W/H			
DATE	8-19-69			8/19/69	8/20/69		8/21/69	9/4/69

PRIORITY: C
DRAWING TITLE: CLIP - ASSEMBLY SHIELD SUPPORT
DRAWING NO. LDW280-18638
EO NO. A4

10/10/69

ISSUED BY M.H. LAMB/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 P. 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 321 REV 3-65

DWG. NO. LEO 280
EO NO. 1682
CONTROL INFO NO. LLW280B7764

FOR THE PART NO.'S NOTED *, EFFECTIVE LM-10(40) THRU LM-14(44) ~ REVISE THE NEXT ASSEMBLIES
ADD: LTA-11(23) & LTA-3 DR-1(460) EFFECTIVITY FOR N/A'S
(QTY. REMAINS THE SAME AS THAT OF LM-10(40))

PART NO *	N/A (WAS)	N/A (NOW)	DWG. TITLE	CHG. NO.
LDW280-17906-13	LDW280-23542 ok -23543 LDW280-23544	LDW280-60542 ok -60543 LDW280-60544	SEE DWG.	B4
LDW280-18638-1 ok -2, -3	LDW280-23543 LDW280-23544	LDW280-60543 LDW280-60544	SEE DWG.	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG.56 PG 3, -4, 5 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED PROP. TANKS

DESCRIPTION OF EO: FOR * N/A'S (NOW) LDW280-60542, -60543 & -60544 (WAS) LDW280-23542, -23543 & -23544, ADD LTA-11(23) FOR LM-10(40) THRU LM-14(44) & LTA-3DR/1(460) EFFECTIVITY.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)	

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY: P&T
DATE: 8-16-69
VDI

DRAWING TITLE: NOTES
DRAWING NO.: LEO 280
EO NO.: 1682

10-24-69 R. BEHAN/P. THORJUSEN x86046

GROUP NO 335 PL 25

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ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1715
CONTROL INFO NO. LDW280B7957		

FOR DASH NO.'S* NOTED ON THE FOLLOWING DWG., N/A LDW280-54527 S/B LDW280-60527 FOR EFF. LM-10(40) THRU LM-14(44).

ADD LTA-11(23), LTA-3DR/1(460) AND TM-13(52) REQTS. WITH SAME N/A & QTY SAME AS LM-10(40).

DRAWING NO.	DASH NO.*	TITLE	CHG.
LDW280-18064	-15	SEE DWG.	B4
-18638	-5, -6		A6
M17112	-3		D5
M17325	-1, -2		E2
LDW280 M17403	-9, -11	SEE DWG.	E2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG. 62	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
EPS BATTERIES RELOCATED FROM QI & IV TO -Z BULKHEAD	FOR * N/A LDW280-60527 WAS LDW280-54527 AND ADDED LTA-11(23), LTA-3DR/1(460), & TM-13(52) EFF.	RS 10-29 10/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
LM		LTA-3DR/1(460)	
LM LM		LTA-11(23) TM-13(52)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓		✓		DATE	9/30/69			9-30-69	9/30/69		10/1/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO 280	1715

CUR 10/24/69
ISSUED BY L.KRAVITZ/THORJUSEN ×87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO/1748
CONTROL INFO NO. LDW280B9324

FOR THE FOLLOWING PART NO'S REMOVE TM-13(52) EFF

DRAWING	DASH NO ▲	TITLE	CHANGE
✓ LDW280-17613	-11, -13, -15	SEE DWG	C4
✓ LDW280-17617	-13 & -14	↕	D6
✓ LDW280-18638	-5 & -6	SEE DWG	A7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 62

(5)

REASON FOR EO: PARTS NOT REQD FOR BATTERY TEST

DESCRIPTION OF EO: IN MOD/BLK FOR ▲ REMOVED TM-13(52) EFF

GAEC EO RELEASE: 11-12-69; 11/12/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-13(52)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					L.E. NM			Bauman
DATE	11/10/69			11-10-69	11-11-69		11/11/69	11/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	1748

CDR 11/14/69
ISSUED BY G.BARNES / P.THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. LDW 280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↑	↑	A8
-18676-11,-13,-15,-17,-19			B4
-18677-11,-13,-15,-17,-19			B4
-18678-11,-13,-15,-17,-19			B4
-18679-11,-13,-15,-17,-19			B4
-18680-11,-13,-15,-17,-19	↓	↓	B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 92	(5)

REASON FOR EO
REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO
IN M/B FOR * REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE
3/16/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C
DRAWING TITLE SEE ABOVE
DRAWING NO. LEO 280
EO NO. 1847

CDR 2/20/70
ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18638	EO NO. A9
CONTROL INFO NO. LM-5-22421	

IN B/M & M/B REMOVE -7, -9, -11 & -12 ASSY'S FROM
N/A LDW280-54700 EFF: LM-10(40) THRU LM-14(44)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 59

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH N/A LDW280-54700 EO C5 ~ METEROID SHIELD REDESIGN FOR LARGER TANKS	IN B/M & M/B REMOVED -7, -9, -11 & -12 ASSY'S FROM N/A LDW280-54700 EFF LM-10 (40) THRU LM-14 (44)	WW 4-30-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
					KC	CL		
DATE 4-21-70	4/1/70 VDI			4/21/70	4/24/70	4-21-70	4/29	4/27/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP ASSY D/S ~ THERMAL SHIELD SUPPORT	LDW280-18638	A9

ISSUED BY LIAISON S. GRECO X86755 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18639

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54587	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM	LDW280-54587	LM-5(35)	1
PART NO. LDW280-18639-1		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
		PRIM NO.	JC(001)	
LAST DASH NO. USED	-11	215	MP-16 9/12/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD1433 CCA586	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	MASONE 9-5-68	RELIABILITY	
LAYOUT BY	J LUCCHESI		
CHECKED BY	W. MURPHY		
GR LEADER	9-7-68		
VEH DES INT	J. Pisateri 9/7/68		
STRUCT	9/10/68	PROJ ENGR	J. Pusateri 9/11/68
STRUCT	WJH 9/10/68	REL GROUP	L G Marsh 9-12-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET ASSEMBLY
PIPE SUPP'T ~ DESCENT STAGE
UPPERDECK - He DIST. LINE

SIZE	CODE IDENT NO.	
B	26512	LDW280-18639
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

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NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A/R		MS20426AD3	E	RIVET	STD PART						
1		NAS680A08	E	PLATE NUT	STD PART						
1		LDW280-18639-11	E	BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.040 x 2 x 2	NONE	88	
		LDW280-18639-1	E	BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18639

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

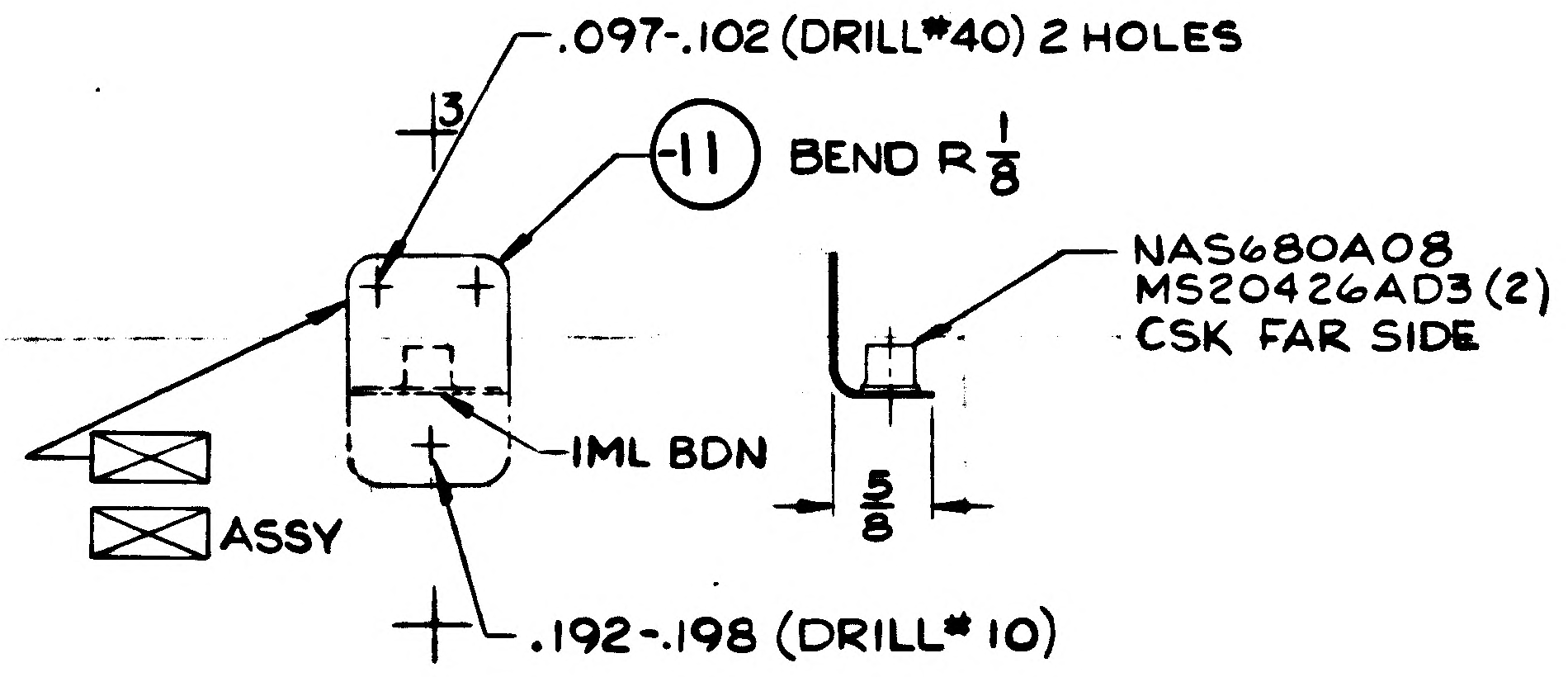
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP-14-15302	✓
TOLERANCES ON LOFTED DELINEATIONS ±1/32	✓

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS

TRAM-OK
TS. 9-9-68


.097-.102 (DRILL#40) 2 HOLES
3
⑪ BEND R 1/8
NAS680A08
MS20426AD3 (2)
CSK FAR SIDE
IML BDN
ASSY
5/8
.192-.198 (DRILL# 10)

LDW280-18639-1 ASSY

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18639
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 1

2K

01

NAS 9-1100

2.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1346
CONTROL INFO NO. LDW280B7442

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS.*

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18613 ✓	A3	SEE DWG
-18614 ✓	A2	
-18615 ✓	A1	
-18620 ✓	A3	
-18627 ✓	A1	
-18628 ✓	B1	
-18630 ✓	A7	
-18631 ✓	A1	
-18638 ✓	A2	
LDW280 -18639 ✓	A1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 5 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: 4/16/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1346

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 - 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1563
CONTROL INFO NO. LDW 280B 8123

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]).
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18631	SEE DWG	A2
✓ 639		A2
650		A3
657		A2
664		A4
LDW280-18666	SEE DWG	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 99 PG 40 & 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 2 8-13-69 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY					N		
DATE	7-29-69			7/29/69	8-2-69		8/ 8-15-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

REL

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1563

8-29-67
ISSUED BY G. HANSMANN X87222 (PHL) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1701
CONTROL INFO NO. LDW280B8380

FOR THE NOTED DWGS & DASH NOS.(*) N/A 280-60587 WAS LDW 280-54587 FOR LM-10 (40) THRU LM-14 (44), LTA 11 (23). ADD LTA 3 DR/1 (460) REQMTS QUANT & N/A SAME AS LM-10 (40)

DWG NO *	TITLE	CHANGE NO.
LDW280 P17960-11 -13	SEE DWG	B5
M17290-1		A5
M17291-1		B4
[illegible]		
LDW 280-18639-1	SEE DWG.	A3

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	LCR 3810	PKG 78	PG 4 & 5 (5)

REASON FOR EO: REDESIGN OF UPPER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * N/A LDW280-60587 WAS LDW280-54587 FOR LM10(40) - LM14(44), LTA11(23) & ADDED LTA3DR/1(460)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) - LM14 (44),	
LM		LTA 3 DR/1 (460) &	
LM		LTA 11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY					W/H			10-1-69
DATE	9/29/69			9-29-69	9/30		10/1/69	10-1-69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1701

CDR 100369
ISSUED BY T. COTTER / D. RAGAS x 87222 SECTION VDI GROUP NO. 335 PL 23

01

NAS 9-1100

G 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18639 | EO NO. A4

CONTROL INFO NO. LM-5-23177

IN M/B

REMOVE -1 QTY (1) FOR LM-10 THRU LM-13, LTA11, LTA3DR/1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	4 LCD 3890 PKG 78

REASON FOR EO: PARTS ARE NOT REQ'D ON N/A 280-60587. TO CONFORM WITH N/A

DESCRIPTION OF EO: IN M/B FOR -1 ~~REMOVED -1~~ REMOVED: LM-10 - LM-13, LTA11 & LTA-3DR/1

Ⓡ GAEC EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	LTA-11 (23)
		THRU	LTA-3DR/1 (160)
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WP			RK	KC	CH	W	
DATE	9/2/70			9/1/70	9/1/70	8-17-70	9/2/70	9/1/70
8-14-70	V/01	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY PIPE SUPPT ~ D/S ~ UPPER DECK - He DIST. LINE	LDW280-18639	A4

ISSUED BY LIAISON, P. HUSTED, 86755 SECTION V D I GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18640

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM268	LDW280-66533	LM-6(36)	8
LFM268	↓	LM-5(35)	8
LM		DVT(70)	1
LM	LDW280-66533	QUALTEST(72)	1
PART NO. LDW280-18640-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM268	LDW280-66534	LM-6(36)	4 EA
LFM268	↕	LM-5(35)	4 EA
LM		DVT(70)	1 EA
LM	LDW280-66534	QUALTEST(72)	1 EA
PART NO. LDW280-18640 -11,-13,-15 & -17		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REF INFO

PRIM NO. 215 | JK(001) ME-16-11/25/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3499 CL#1 PG2

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J.GARRAFFO	RELIABILITY	
LAYOUT BY	A.E.CAVE AEC	THERMO	11/20/68
CHECKED BY	N.BERNSTEIN 11/8/68		
GP LEADER	Thoinsen 11-12-68		
VEH DES INT	J. Pusateri 11/19/68		
STRUCTURES	NM 11/21/68	PROJ ENGR	J. Pusateri 11/22/68
STRUCTURES	NJL 11/22/68	REL GROUP	L. Marsh
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-PLUME
DEFLECTOR-TORQUE TUBE

SIZE B | CODE IDENT NO. 26512 | LDW280-18640

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 11-22-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18640-19	E	PLATE	TITANIUM SH	MIL-T-9046 TYPE III COMP C, COND STA	6AL-4V	.050x2 1/8x2 7/8	NONE	NONE	
		-17		CHANNEL		MIL-T-9046 TYPE III COMP C, Annealed		.020x4 5/8x15 1/8		SEE NOTE #2	
		-15						.020x4 5/8x15 1/8		SEE NOTE #2	
		-13						.020x7 3/8x25 7/8		SEE NOTE #2	
		LDW280-18640-11	E	CHANNEL	TITANIUM SH	MIL-T-9046 TYPE III COMP C, Annealed	6AL-4V	.020x7 3/8x25 7/8	NONE	SEE NOTE #2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18640

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

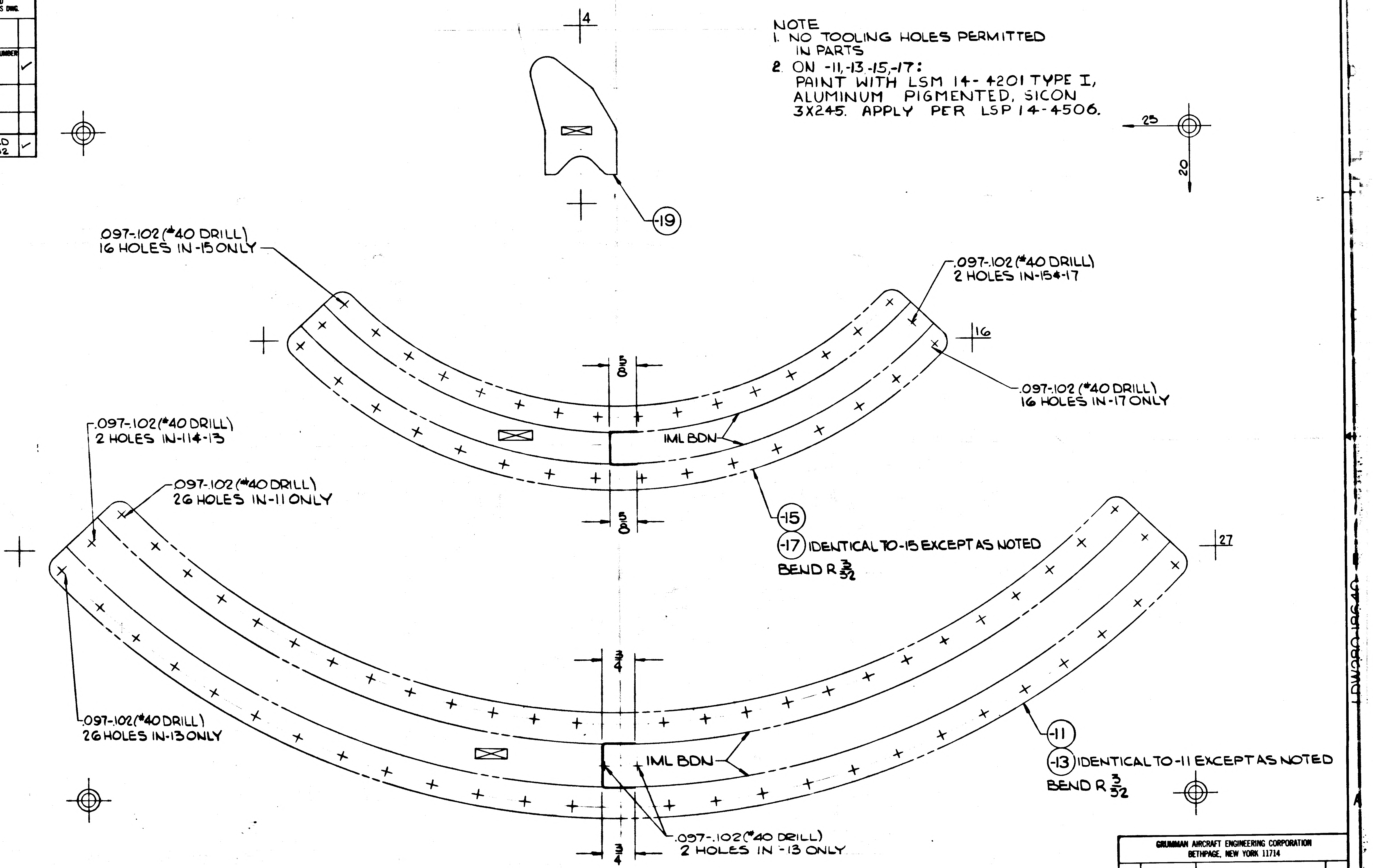
01

NAS 9-1100

LDW280-18640

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS
2. ON -11,-13-15,-17:
PAINT WITH LSM 14-4201 TYPE I, ALUMINUM PIGMENTED, SICON 3X245. APPLY PER LSP 14-4506.



4
-19
16
25
20
.097-.102 (#40 DRILL)
16 HOLES IN -15 ONLY
.097-.102 (#40 DRILL)
2 HOLES IN -15 & -17
.097-.102 (#40 DRILL)
16 HOLES IN -17 ONLY
5/8
IML BDN
-15
-17 IDENTICAL TO -15 EXCEPT AS NOTED
BEND R 3/32
.097-.102 (#40 DRILL)
2 HOLES IN -11 & -13
.097-.102 (#40 DRILL)
26 HOLES IN -11 ONLY
27
3/4
.097-.102 (#40 DRILL)
26 HOLES IN -13 ONLY
IML BDN
-11
-13 IDENTICAL TO -11 EXCEPT AS NOTED
BEND R 3/32
.097-.102 (#40 DRILL)
2 HOLES IN -13 ONLY

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714		
SIZE D	CODE IDENT NO. 26512	LDW280-18640
SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

LDW280-18640

Q1 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18640 EO NO. A1
CONTROL INFO NO. LDW280B6525

FOR LDW280-18640 -11,-13,-15 &-17
EFFECTIVE LFM 268 [LM-5(35)&LM-6(36)]
QUAL (72)
DVT (70)
N/A LDW280-66532
(WAS) N/A LDW280-66534

(SCRAP) LDW280-18640 -19
EFFECTIVE LFM 268 [LM-5(35)&LM-6(36)]
QUAL (72)
DVT (70)

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ CD 3499 PKG 2 PAGE 3 (5)

REASON FOR EO: REVISED ROD END CONFIGURATION

DESCRIPTION OF EO: FOR -11,-13,-15 &-17 N/A LDW280-66532
(WAS) LDW280-66534
(REMOVED) -19

GAEC/EO RELEASE: JK 1/14/9

MODEL	EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35)+LM-6(36)	
LM		QUAL TEST(72)	
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -19

APPROVED BY									
DATE	12/18/68	12/23/68		12/17	1/6/69		1/6/69	1-14-69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: CHANNEL D/S-PLUME DEFLECTOR-TORQUE TUBE
DRAWING NO. LDW280-18640
EO NO. A1

ISSUED BY 12/30/68 H. ISRAEL X 87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1286
CONTROL INFO NO. LDW280B7164

FOR THE DRAWINGS LISTED BELOW, REMOVE NOTES (▽).

DWG NO.	CHANGE NO.	DWG NOMENCLATURE	NOTE NO. (▽)
✓ LDW280-18640	A2	SEE DWG	2
LDW280-18643	A3	↑	4 & 5
LDW280M18056	A2		* (REF E.O. A1)
LDW280M18060	A2		1 & 2
LDW280M18078	A2		1 & 2
LDW280M18079	A2	↓	1 & 2
LDW280M18080	A1	SEE DWG	1 & 2

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3499 PK2 P.5 (5)

REASON FOR EO: SICON COATING TO BE DONE ON INSTL LMG R.E. 2/14/69

DESCRIPTION OF EO: REMOVED NOTES (▽)

GAEC EO RELEASE: JK 2/17/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35), LM-6(36)	
LM		DVT (70)	
LM		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☑ SCRAP ☐

APPROVED BY	Jap	JLK		PST	NM		Jap	JP
DATE	2/15/69	2/15/69		2/15/69	2/15/69		2/15/69	2/15/69
	VDI	~~SUPPORT~~ THIS MO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1286

ISSUED BY H. ISRAEL/P.THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1662
CONTROL INFO NO. LDW280B8852		

ADD LM-7(37) LFM-268, LM-8(38) THRU LM-14(44)
REQMTS TO THE DASH NO.'S OF THE
FOLLOWING DWGS.
QTY & N/A TO REMAIN THE SAME AS LM-6(36)

DWG. NO.	DASH NO.*	CHG NO	TITLE
✓ LDW280-18682 ✓	-11	A1	STRAP-D/S-PLUME D.
✓ -18640 ✓	-11, -13, -15, -17	A3	CHANNEL "
-18683 ✓	-11	A1	WASHER "
M18057 ✓	-13, -14	B2	ROD END "
M18059 ✓	-11-1, -13	A3	ROD END "
M18060 ✓	-11	A3	ROD END "
M18064 ✓	-11	A2	PLUG CTR OPP. "
M18065 ✓	-11-1	A2	OPP. CTR SUPT. FITG.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3499G PKG 2 PG 6,7 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQMTS	FOR * ADDED LM-7(37) LFM 268, LM-8(38) THRU LM-14(44)	9-8-69 JK 9/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-14(44)	
LM		LM-8(38) THRU	
LM	LFM1268	LM-7(37)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		MP			
✓		NOT	REQ'D	DATE	9-6-69	9-8-69		9/6/69	9/8/6-
REVISE DWG	RECORD EO	REWORK	SCRAP		UDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP

W/N		9/8/69
LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1662

9/5/69
ISSUED BY R.P. OBERNDORFER, P. THORJUSEN X87222 SECTION UDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1708
CONTROL INFO NO. LDW28uB8899

ON DASH NOS. ✱ OF THE FOLLOWING DWGS, REDUCE QTY REQD/VEHICLE AS NOTED

	DWG NO.	DASH NO. ✱	CHANGE NO.	TITLE	QTY/VEH ■ IS	QTY/VEH ▲ WAS	N.A
✓	LDW280M18087	-11	A2	SEE DWG	4	8	
✓	M18059	[illegible]	A4		[illegible]	[illegible]	[illegible]-66533
		-11-1			4	8	[illegible]-66532
✓	-66533	-1-1, -7, -9	A4		2	4	
		-3, -5			4	8	
✓	-18640	-11, -13	A4		2	4	
	-66547	-1	A3		2	4	
	LDW280-66548	1, -2, -5, -6	A3		2	4	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 96

(5)

REASON FOR EO: REMOVE EXISTING DEFLECTORS FROM QDS I ¢ IV

DESCRIPTION OF EO: ON - ✱, QTY ■ REQD/VEH (WAS) ▲

GAEC EO RELEASE: (E) 10-6-69; 10/3/69; 10/3/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	10/2/69			10-2-69	10/3/69		10/3/69
	VDI						

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1708

10/6/69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1833
CONTROL INFO NO. LDW 280 B9747

FOR THE DRAWINGS* LISTED BELOW, ADD N/A LDW280-66552, EFF. LM-10(40) THRU LM-14(44), QUAL TEST (72) WITH THE NOTED QTY PER MODULE.

DRAWING NO.*	QUANTITY LM-10 - LM-14	QUANTITY QUAL TEST (72)	TITLE	CHANGE LETTER
✓ LDW 280-18640-15, -17	2 EA.	1 EA.	SEE DWG.	A5
LDW 280 M18078-11	4 EA.	2 EA.	↓	A5
LDW 280 M18079-11	4 EA.	2 EA.	↓	A4
LDW 280 M18064-11	2 EA.	1 EA.	↓	A3
LDW 280 M18072-11	2 EA.	1 EA.	↓	A3
LDW 280-18683-11	212 EA.	106 EA.	SEE DWG.	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PK 96 (5)

REASON FOR EO: ADDITIONAL REQUIREMENT FOR RCS PLUME DEFLECTOR

DESCRIPTION OF EO: FOR (*) ADDED LM-10(40) THRU LM-14(44) & Q.T. (72) N/A LDW280-66552.

GAEC EO RELEASE: VK 3/6/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
LM		LM-14 (44)	QUAL TEST (72)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQ.

APPROVED BY	RBT						OJT	
DATE	2-3-70			2/4/70	2/4/70		2-4-70	2/6/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1833

2-9-70
ISSUED BY L. NICHOLAS / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18641

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66533	QUALTEST(72)	2 EA
LM	LDW280-66533	DVT (70)	2 EA
LFM268	LDW280-66533	LM-6(36)	8 EA
LFM 268	LDW280-66533	LM-5(35)	8 EA
PART NO. LDW280-18641-11 & -13		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL & INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-13	207	ME-1/3/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3499 PKG 2	

ECP A096

CONTRACT NO. NAS9-1100

DRAWN BY	V.NARONIS 12-2-68	RELIABILITY	
LAYOUT BY	R.VERZERA	MATL	R Hoffman 1/2/69
CHECKED BY	L.ATLAS 12-5-68	THERMO	JLR 12/23/68
GR.LEADER	12-12-68		
VEH.DES.INT.	12/16/68		
STRUCTURES	N.M 1/2/69	PROJ ENGR	1/2/69
STRUCTURES	1/2/69	REL GROUP	Bauman 1-3-69
WEIGHTS			

Ⓟ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE-UPPER & LOWER
DIAGONAL-PLUME DEFLECTOR SPT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18641
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12-20-68

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18641-13	E	STRUT	TITANIUM TUBE	AMS4942		1½ OD×.035×55	CM	NONE	
		LDW280-18641-11	E	STRUT	TITANIUM TUBE	AMS4942		1 OD×035×38	CM	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
CM	CHEM-MILLING	LSP14-26100

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18641
SCALE NONE
SHEET 2.00

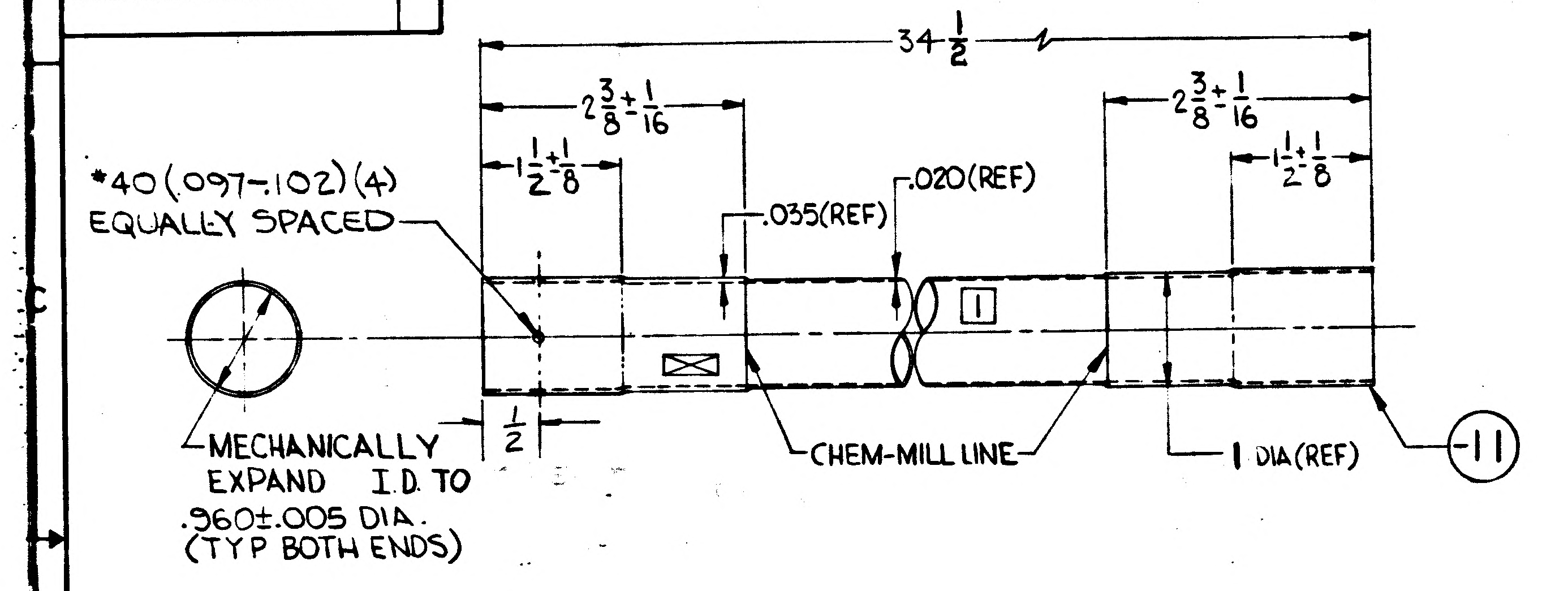
ENG 77.2 7-65

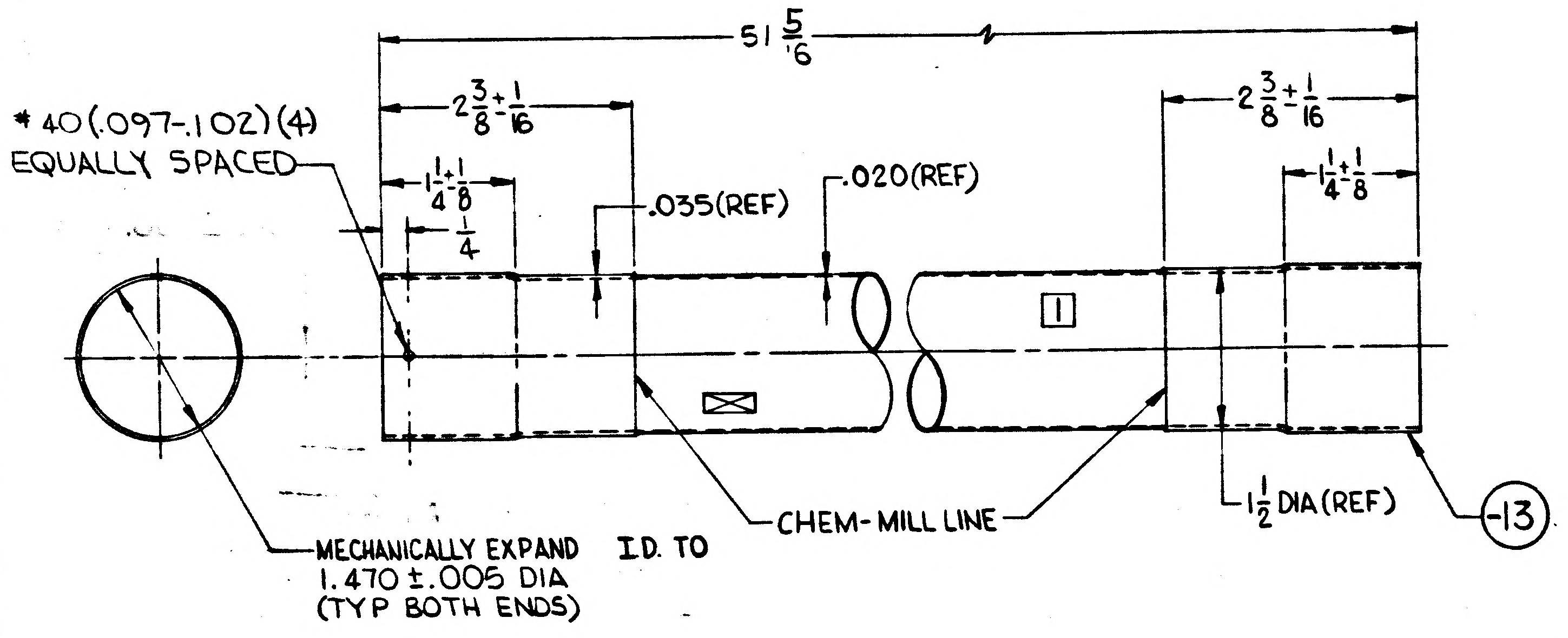
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. PAINT WITH LSM-14-4201, TYPE I ALUMINUM PIGMENTED SICON 3X245. APPLY PER LSP-14-4506.


34 1/2
2 3/8 ± 1/16
1 1/2 ± 1/8
*40 (.097-.102) (4) EQUALLY SPACED
.035 (REF)
.020 (REF)
I
2 3/8 ± 1/16
1 1/2 ± 1/8
1/2
MECHANICALLY EXPAND I.D. TO .960±.005 DIA. (TYP BOTH ENDS)
CHEM-MILL LINE
1 DIA (REF)
-11


51 5/16
2 3/8 ± 1/16
1 1/4 ± 1/8
1/4
*40 (.097-.102) (4) EQUALLY SPACED
.035 (REF)
.020 (REF)
I
2 3/8 ± 1/16
1 1/4 ± 1/8
MECHANICALLY EXPAND I.D. TO 1.470 ±.005 DIA (TYP BOTH ENDS)
CHEM-MILL LINE
1 1/2 DIA (REF)
-13

LDW280-18641-11 & -13

CHEM-MILL LINE TOLERANCE:
±1/16 WHERE DEPTH OF ETCH IS .040 OR LESS (EXCEPT AS NOTED)
±1/32 WHERE DEPTH OF ETCH IS GREATER THAN .040

SYMBOL	THICKNESS AFTER CHEM-MILLING	*DEPTH OF CUT
I	$.020^{+.005}_{-.002}$	.015 (REF)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18641	
SCALE FULL		SHEET 3.00	

ENG 73-8 REV 9-67

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING O. R

DWG. NO. LDW280-18641
EO NO. A1
CONTROL INFO NO. LDW280B7079

IN L/M DELETE GRUMMAN SPEC LSP-14-26100
ADD PROCESS SYMBOL CM SEE NOTE *

IN F/D ADD NOTE *
*. COMMERCIALLY PURE TITANIUM TUBING CHEMICALLY MILLED PER THIS DWG SHALL MEET THE QUALITY ASSURANCE PROVISIONS OF LSP14-26300. THE END PRODUCT HYDROGEN ANALYSIS LIMIT PER BATCH OF TUBING PROCESSED AT ONE TIME SHALL NOT EXCEED 170 PPM MAXIMUM AS MEASURED ON A PIECE OF TUBING TRIM STOCK AT THE MAXIMUM DEPTH OF CUT. SURFACE ROUGHNESS SHALL NOT EXCEED 100 MICROINCHES RHR PER MIL-STD-10A WHEN READ IN THE LONGITUDINAL AND TRANSVERSE DIRECTIONS.

LFM

* NEXT AVAIL NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3499 PK 2 P.4 (5)

REASON FOR EO: LSP14-26100 DOES NOT APPLY TO CHEM MILLING OF COMM. PURE TITANIUM TUBE
LMG R.E. 2/4/69

DESCRIPTION OF EO: DELETED CM SPEC LSP-14-26100 ADDED CM SEE NOTE *; ADDED NOTE *

GAEC EO RELEASE: SK 2/4/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LFM 268	LM-5(35) LM-6(36)	
		DVT (70)	
		QUALTEST (72)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REWORK REQD SCRAP

APPROVED BY	Jat	Gatt		Pft	wjd		JaP	LM
DATE	2/4/69	2-4-69		2/4/69	2/4/69		2/4/69	2-4-69
	VDI	MATLS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: STRUT-D/S-UPR & LWR DIAGONAL PLUME DEFLECTOR SUPPORT
DRAWING NO.: LDW280-18641
EO NO.: A1

020469
ISSUED BY G. BELEV~THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

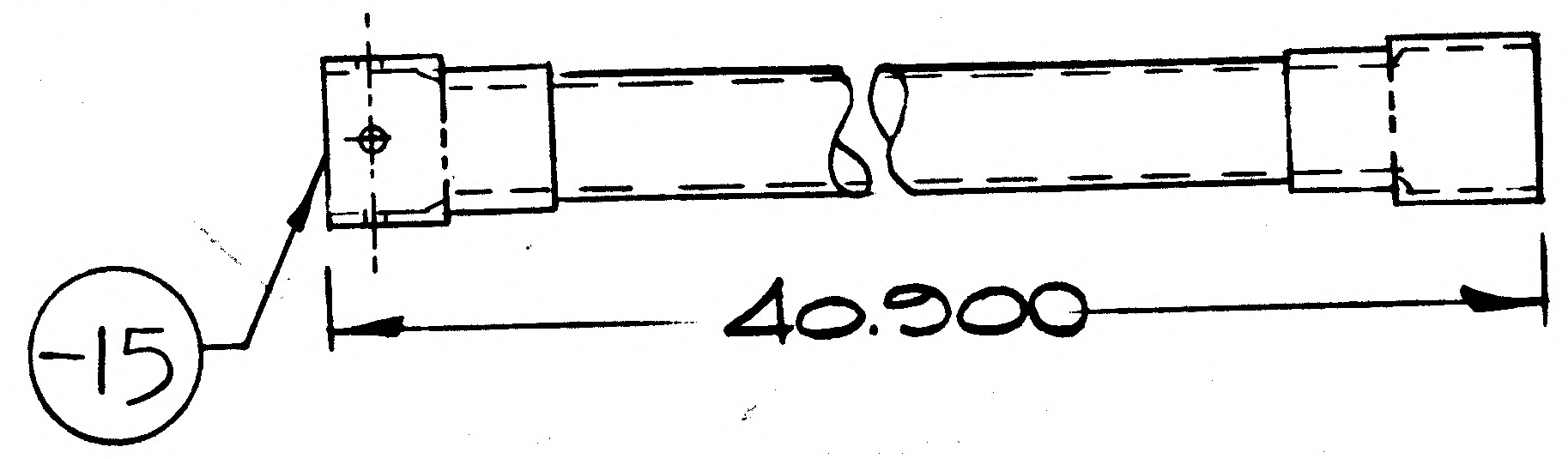
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18641
EO NO. A2
CONTROL INFO NO. LDW280B7012

IN F/D, M/B, L/M

ADD -15 STRUT IDENT TO -11 EXCEPT OVER ALL LENGTH IS 40.900. QTY, NA, F/N REMAIN THE SAME.
(REMOVE) NOTE #2



LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3499 PK2 P.

REASON FOR EO: ADDITIONAL REQUIREMENTS FOR PLUME DEFLECTOR
L76 RE. 2/14/69

DESCRIPTION OF EO: ADDED -15
REMOVED NOTE #2

GAEC EO RELEASE: ⑨ JVC 2/17/69 ⑤

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM268	LM-5(35), LM-6(36)	
		DVT (70)	
LM		QUALTEST(72)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY	JaP	JLR		PSF	NM		JaP	RJ
DATE	2/15/69	2/15/69		2/15/69	2/15/69		2/15/69	2/15/69
	UDI	~~[illegible]~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: STRUT~D/S~UPR & LWR DIAGONAL PLUME DEFLECTOR SUPPORT
DRAWING NO.: LDW280-18641
EO NO.: A2

ISSUED BY G. BELEV~THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18641
EO NO. A3
CONTROL INFO NO. LM-3-6930

IN PROCESS BLOCK REVISE CALLOUT:

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
CM	CHEM-MILLING	LSP-14-26300

WAS:

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
CM	CHEM-MILLING	LSP-14-26100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3499 PKG #2 (3)

REASON FOR EO: INCORRECT SPEC. CALLOUT

DESCRIPTION OF EO: —— NOTED ABOVE ——

GAEC EO RELEASE: Ⓡ

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35) &	LM-6(36)
		DVT(70)	
		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

APPROVED BY			L.Y.			BM			
DATE	7/1/69		6-20-69	6/30/69	6-16-69	6-16-69	7/1/69	6/20/69	
6-16-69	VD1	SUPPORT	GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C

DRAWING TITLE: STRUT-D/S-UPPER & LOWER DIAGONAL-PLUME DIFLECTOR SPT

DRAWING NO.: LDW280-18641

EO NO.: A3

ISSUED BY VPE/A FERRERI x2151 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1663
CONTROL INFO NO. LDW280 B8853

ADD LM-7(37) LFM268, LM-8(38) THRU LM-14(44) REQMTS TO THE DASH NOS.* OF THE FOLLOWING DWGS
QTY & N/A TO REMAIN THE SAME AS LM-6(36)

DWG NO.	DASH NO. *	CHANGE NO.	TITLE
✓ LDW280-M18066	-11-1	A4	FITTING-DEFLECTOR TORQ. TUBE
✓ M18072	-11	A2	PLUG-DEFLECTOR TORQ. TUBE
✓ M18078	-11	A3	CAP-DEFLECTOR TORQ. TUBE
✓ M18079	-11	A3	CAP-DEFLECTOR TORQ. TUBE
✓ M18084	-11	A2	FITTING-RCS PLUME DEFLECTOR
✓ M18087	-11	A1	RODEND-PLUME DEFLECTOR
✓ -66533	-1,-3 -5,-7,-9	A3	STRUT ASS'Y
✓ -18641	-11,-13,-15	A4	STRUT-PLUME DEFLECTOR SPT.
-18643	-13	A4	STRUT-PLUME DEFLECTOR
M18056	-13	A3	RODEND-DEFLECTOR LOWER STRUT

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3499 G PKG 2 PG 7	(5)

REASON FOR EO: ADD'L REQ'MTS

DESCRIPTION OF EO: FOR DASH NOS.* ADDED LM-7(37) LFM268, LM-8(38) THRU LM-14(44) EFFECTIVITY

GAEC EO RELEASE: LR 9-8-69; JK 9/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38) THRU LM-14(44)	
LM	LFM268	LM-7(37)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY	PST	MD			w/d			
DATE	9-6-69	9-8-69		9/6/69	9-6-69		9/10/69	9/10/69
	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 1663

9/5/69 ISSUED BY P. GARAHAN / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1704
CONTROL INFO NO. LDW280B8900

ON DASH Nos. * OF THE FOLLOWING DWGS, REDUCE QTY REQD/VEHICLE AS NOTED.

DWG No.	DASH No. *	CHANGE No.	TITLE	QTY/VEH ■ IS	QTY/VEH ▲ WAS	
✓ LDW280-18682	-11	A2	SEE DWG	4	8	LM-10(40) THRU LM-14(40)
✓ -18641	-11, -13, -15	A5		4 EA	8 EA	
-18643	-13	A5		2	4	
-66535	-1-1	A6		2	4	
-66532	-5-1	B5		2	4	
LDW280-18683	-11	A2		228	456	LM-10(40) THRU LM-14(44)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 96 (5)

REASON FOR EO: REMOVE EXISTING DEFLECTORS FROM QDS I & IV

DESCRIPTION OF EO: ON - *, QTY ■ REQD/VEH WAS ▲

GAEC EO RELEASE: 10-6-69
JK 10/7/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PST				
DATE	10/2/69			10-2-69	10/3/69		10/3/69	10-6-69

PRIORITY C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 1704

10/6/69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

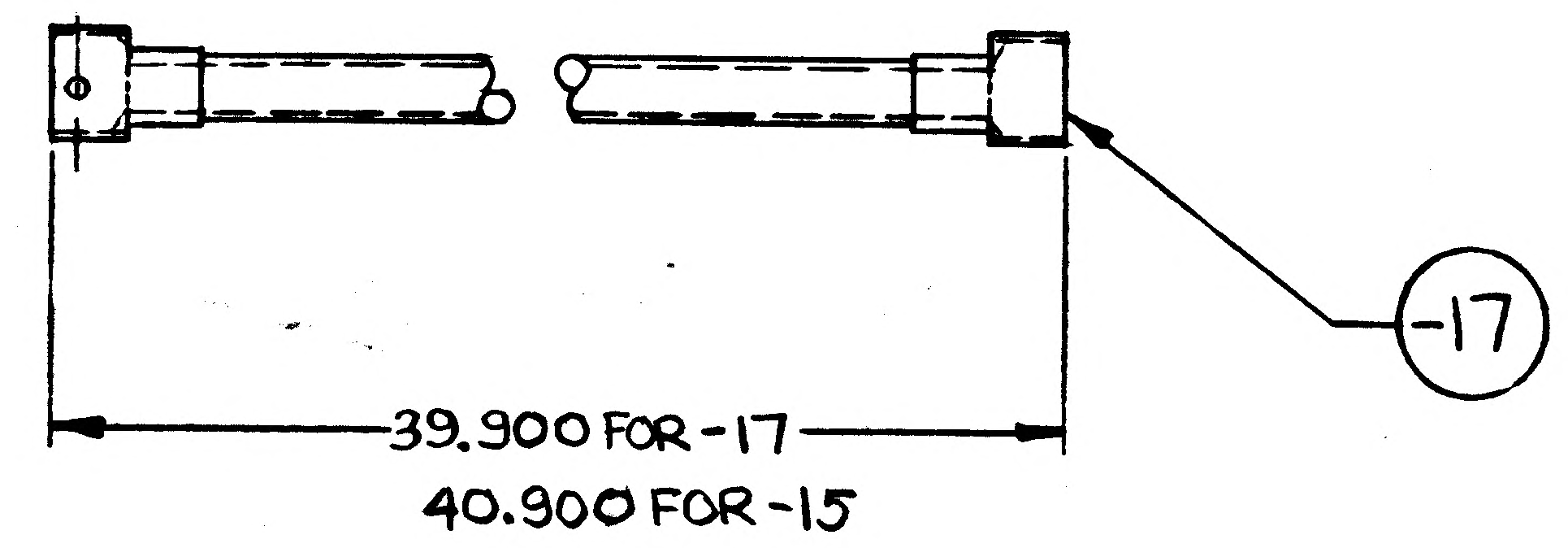
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18641	EO NO. A6
CONTROL INFO NO. LDW280B9611	

REDUCE QTY -15(2) REQ'D/MOD WAS(4) REQD/MOD

ADD -17 (2) REQD/MOD. IDENTICAL TO -15 EXCEPT AS NOTED , N/A LDW280-66533
EFF: LM-10(40) THRU LM-14(44)



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 96 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SHORTER STRUT REQD DUE TO REDESIGN OF ±281 STRUT SUPT FITTING	FOR -15, (2) REQD/MOD WAS (4) REQD ADDED -17	VK 2/9/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	RJT			JL			RJT	
DATE	2-4-70			2/4/70	2/4/70		2-5-70	2/9/70
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT ~ D/S ~ UPR & LWR DIAGONAL PLUME DEFLECTOR SUPPORT	LDW280-18641	A6

CDR 02/11/70

ISSUED BY W. MALAKHOW / J. LANG X1392 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-18641 EO NO. A7
CONTROL INFO NO. LM-6-23895

IN L/M FOR -13 ADD SEE NOTE *

IN F/D ADD NOTE *

ADD NOTE *: -13 MAY BE MADE FROM TI-3AL-2.5V, 1.500D X.032 SEAMLESS TITANIUM TUBING, COLD WORKED AND STRESS RELIEVED, THAT MEETS THE FOLLOWING REQUIREMENTS

CHEMISTRY			
	AL	2.5 - 5.5	WEIGHT PER CENT
	V	2.0 - 3.0	
	Fe	0.30 MAX	
	C	0.05 MAX	
	N	0.02 MAX	
	O	0.12 MAX	
	H	0.015 MAX	
	Ti	BALANCE	

MECHANICAL PROPERTIES

F_{TU} 125000 PSI MIN
F_{TY} 105000 PSI MIN (0.2% OFFSET)
% ELONG 10.0% MIN (2 INCHES)

THE MAXIMUM ROOM TEMPERATURE TENSILE PROPERTIES OF THE TUBING SHALL NOT EXCEED 20000 PSI ABOVE THE SPECIFIED MINIMUMS. TUBING SHALL BE CAPABLE OF BEING FLARED TO A DIAMETER OF 1.2 X NOMINAL O.D. AND SHALL REMAIN SOUND, UNIFORM AND SMOOTH. DETAILS MADE FROM THIS MATL ARE EQUIVALENT TO, AND MAY BE SUBSTITUTED FOR, DETAILS MADE FROM TITANIUM PER AMS4942, 1.50 OD X .035

(SHOP REF INFO)
THIS MATERIAL IS EQUIVALENT TO CORPORATE SPECIFICATION GM 3107 MATERIAL.

* USE NEXT AVAIL NOTE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☒ CL I ENGRG CHG ☐

REASON FOR EO: ALTERNATE MAT'L REQM'T. (ORIGINAL DWG MAT'L NOT AVAILABLE.)

DESCRIPTION OF EO: FOR -13, ADDED NOTE *.

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCAP)

APPROVED BY	PBT	RAH		NM	ALW		Both
DATE 3/27/71	4-5-71	3/25/71		4/5/71	3/24/71	3/27/71	3-30-71
	VDI	MATLS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: E
DRAWING TITLE: STRUT~D/S UPR & LWR DIAGONAL~PLUME DEFLECTOR SPRT
DRAWING NO.: LDW280-18641
EO NO.: A7

ISSUED BY PROD'N ENGRG ART WILSON X86755 SECTION VDI GROUP NO. 0335 PL 025

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18641 | EO NO. A8
CONTROL INFO NO. LM-5-23990

ON -17 ADD SEE NOTE *.

IN FLD. ADD NOTE *.

ADD NOTE *: -17 MAY BE MADE FROM TI-3AL-2.5V, 1.00 O.D. x .032 SEAMLESS TITANIUM TUBING, COLD WORKED AND STRESS RELIEVED, THAT MEETS THE FOLLOWING REQUIREMENTS.

CHEMISTRY		
	AL	2.5-5.5
	V	2.0-3.0
	Fe	0.30 MAX.
	C	0.05 MAX.
	N	0.02 MAX.
	O	0.12 MAX
	H	0.015 MAX.
	Ti	BALANCE

} — WEIGHT PER CENT

MECHANICAL PROPERTIES		
	FTU	125,000 PSI MIN.
	FTY	105,000 PSI MIN. (0.2% OFFSET)
	% ELONG	10.0% MIN. (2 INCHES)

THE MAXIMUM ROOM TEMPERATURE TENSILE PROPERTIES OF THE TUBING SHALL NOT EXCEED 20,000 PSI ABOVE THE SPECIFIED MINIMUMS. TUBING SHALL BE CAPABLE OF BEING FLARED TO A DIA. OF 1.2 x NOMINAL O.D. AND SHALL REMAIN SOUND, UNIFORM AND SMOOTH. DETAILS MADE FROM THIS MATL. ARE EQUIVALENT TO, AND MAY BE SUBSTITUTED FOR, DETAILS MADE FROM TITANIUM PER AMS 4942, 1.00 O.D. x .035

(SHOP REF INFO)

THIS MATERIAL IS EQUIVALENT TO CORPORATE SPECIFICATION GM 3107 MATERIAL.

* USE NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG ☐

REASON FOR EO: ALTERNATE MAT'L REQM'T.

DESCRIPTION OF EO: FOR -17 ADDED NOTE *.

GAEC EO RELEASE Ⓡ

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	PW	NOT REQ'D.	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	NOT REQ'D.	
		REWORK	SCRAP

APPROVED BY								
DATE	6/25/71	7/20/71		7/20/71	6/25/71	6-25-71	7/26/71	6-25-71
6-25-71	MAT'L	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP KC	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: E

DRAWING TITLE: STRUT DS.-UP.-LWR. DIAG.-PLUME DEF.

DRAWING NO.: LDW280-18641 | EO NO.: A8

ISSUED BY LIAISON J. JARVIS SECTION V D I GROUP NO. 0335 PL 025

01

NAS 9-1100

LDW280-18643

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66533	DESIGN VERIFICATION TEST (70)	1
LM	↕	QUAL TEST (72)	1
LFM 268	↕	LM-6 (36)	4
LFM 268	LDW280-66533	LM-5 (35)	4
PART NO. LDW280-18643 -11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	
LAST DASH NO. USED	-11

GRUMMAN REC INFO

PRIM NO.	JK(001)	
215	ME-16- 11/27/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3499	

DRAWN BY	A.LITVINOFF 11-18-68	RELIABILITY	
LAYOUT BY	G.BELEV	THERMO	JLK 11/26/68
CHECKED BY	11/19/68		
GR LEADER	Thorjussen 11/20/68		
VEH DES INT	J. Pusateri 11/21/68		
STRUCTURES	NM 11/26/68	PROJ ENGR	J. Pusateri 11/26/68
STRUCTURES	11/26/68	REL GROUP	L. Marsh 11-27-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
CENTER-DESCENT STAGE-PLUME
DEFLECTOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18643
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18643-11	E	STRUT	TUBING,STEEL	AMS 6415	4340	1.250.D×.035× 44	SEE NOTE 3 M,CM	SEE NOTE 4	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						M	MAGNAFLUX	MIL-I-6868
						CM	CHEM MILL	LSP14-26201

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18643

SCALE NONE SHEET 2.00

ENG 77.2 7-65

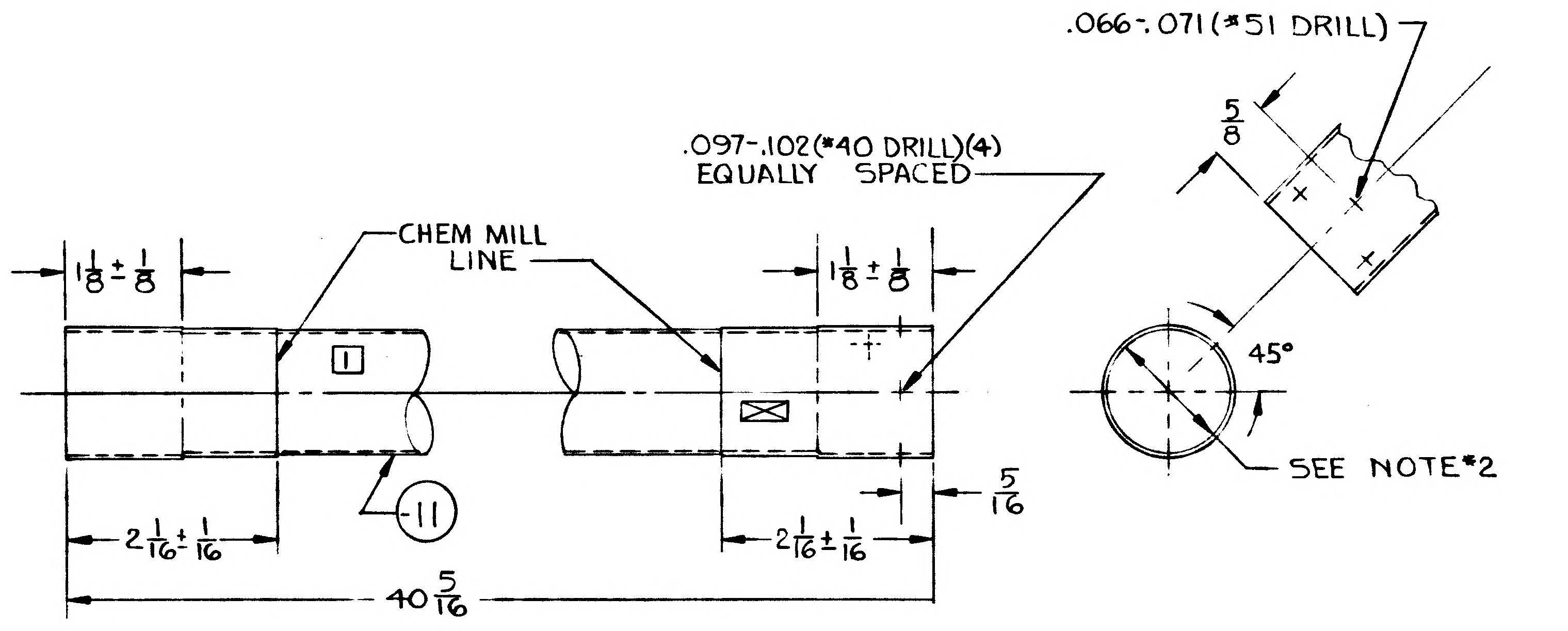
01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. MECHANICALLY EXPAND I.D. TO 1.200 I.D. ± .005 FOR DEPTH NOTED
3. STEEL HT TREAT PER LSP-14-5100A TO 125,000 PSI, ROCKWELL 27C-32C.
4. MECHANICALLY CLEAN PER LSP-14-7012. PAINT WITH LSM14-4201, TYPE I, ALUMINUM PIGMENTED, SICON 3X245. APPLY PER LSP14-4506.
5. ALL DIMENSIONS TO BE MET BEFORE SICON COATING.


.066-.071 (#51 DRILL)
5/8
.097-.102 (#40 DRILL) (4) EQUALLY SPACED
CHEM MILL LINE
$1\frac{1}{8} \pm \frac{1}{8}$
$1\frac{1}{8} \pm \frac{1}{8}$
1
45°
SEE NOTE #2
11
$2\frac{1}{16} \pm \frac{1}{16}$
$2\frac{1}{16} \pm \frac{1}{16}$
5/16
$40\frac{5}{16}$

LDW280-18643-11

CML - CHEM MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS = 1/16
ETCH DEPTH OVER .040 = 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.020 ± .002	.015 (REF)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18643

SCALE FULL
SHEET 3.00

LDW280-18643

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18643
EO NO. A1
CONTROL INFO NO. LDW280B6430

IN F/D & B/M & M/B
REMOVE -11

ADD -13 IDENT TO -11 EXCEPT -13 TO BE MADE FROM 4130 STEEL, MIL-T-6736. (FIN, QTY, N/A, PROCESS REMAIN THE SAME.)
ADD NOTE * PARTS MAY BE CHEM MILLED OR MACHINED TO DIM. SHOWN. LARGER DIA. TUBE MAY BE USED FOR MACHINING

LFM

* USE NEXT AVAIL NOTE NUMBER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3499 PK 2 PG 3 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISED THERMAL REQUIRMENTS	ADDED -13, REMOVED -11; ADDED NOTE *	6 JK 12/5/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35), LM-6(36)	
		DVT(70)	
LM		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

APPROVED BY	JAS	JLK	RAH	PJF	WJA			JaP	Lm
DATE	12/3/68	12/[illegible]	12/4/68	12/3/68	12/4/68			12/4/68	12-5-68
	VDI	~~THERMO~~	~~RELIAB~~ GROUP MATL	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT CENTER ~ D/S ~ PLUME DEFLECTOR	LDW280-18643	A1

120468
ISSUED BY G. BELEV ~ THORJUSEN SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18643 EO NO. A2
CONTROL INFO NO. LM-2-5136

DELETE NOTE 4 & ADD NOTE * AS FOLLOWS:

* "PAINT AS FOLLOWS: OUTER SIDE - APPLY SICON 3X 245 ALUMINUM PIGMENTED PAINT PER LSP 14-4506 EXCEPT THAT SURFACE PREPARATION, PARAGRAPH 3.4.1, SHALL BE 'MECHANICALLY CLEANED PER LSP 14-7012'.
INNER SIDE - APPLY SICON 3X 245 ALUMINUM PIGMENTED PAINT PER LSP 14-4506 EXCEPT THAT SURFACE PREPARATION, PARAGRAPH 3.4.1, SHALL BE DELETED. APPLICATION, PARAGRAPH 3.4.4, SHALL BE "FILL & DRAIN" & QUALITY ASSURANCE PROVISIONS, PARAGRAPH 4.000, SHALL BE DELETED."

* USE NEXT AVAILABLE NOTE NUMBER.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3499 (2)

REASON FOR EO: TO CLARIFY METHOD OF FINISH COATING

DESCRIPTION OF EO: ON-13 ADDED NOTE * DELETED NOTE #4.

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35)	-6(36)
		DVT (70)	
		QUAL TEST(72)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	12-12-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	RELEASE

PRIORITY: C
DRAWING TITLE: STRUT-CENTER - DESCENT STAGE PLUME DEFLECTOR
DRAWING NO.: LDW280-18643
EO NO.: A2

ISSUED BY LIAISON-A.T. ARROYO-X-3604 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1286
CONTROL INFO NO. LDW280B7164

FOR THE DRAWINGS LISTED BELOW, REMOVE NOTES (▽).

DWG NO.	CHANGE NO.	DWG NOMENCLATURE	NOTE NO. (▽)
✓LDW280-18640	A2	SEE DWG	2
✓LDW280-18643	A3	↓	4 & 5
LDW280M18056	A2		*(REF E.O. A1)
LDW280M18060	A2		1 & 2
LDW280M18078	A2		1 & 2
LDW280M18079	A2	↓	1 & 2
LDW280M18080	A1	SEE DWG	1 & 2

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3499 PK2 P.5	(5)

REASON FOR EO: SICON COATING TO BE DONE ON INSTL LMG R.E. 2/14/69

DESCRIPTION OF EO: REMOVED NOTES (▽)

GAEC EO RELEASE: JK 2/1?/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 268	LM-5(35),	LM-6(36)
LM		DVT(70)	
LM		QUAL TEST (72)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☑ REWORK ☐ SCRAP

APPROVED BY	Jap	JLK		PST	NM		Jap	JP
DATE	2/15/69	2/15/69		2/15/69	2/15/69		2/15/69	2/15/69
	VDI	~~SUPPORT~~ [illegible]	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1286

ISSUED BY H. ISRAEL/P.THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1663

CONTROL INFO NO. LDW280 B8C5-3

ADD LM-7(37) LFM268, LM-8(38) THRU LM-14(44) REQMTS TO THE DASH NOS.* OF THE FOLLOWING DWGS
QTY & N/A TO REMAIN THE SAME AS LM-6(36)

DWG NO.	DASH NO. *	CHANGE NO.	TITLE
LDW280-M18066	-11-1	A4	FITTING-DEFLECTOR TORQ. TUBE
M18072	-11	A2	PLUG- DEFLECTOR TORQ. TUBE
M18078	-11	A3	CAP- DEFLECTOR TORQ. TUBE
M18079	-11	A3	CAP- DEFLECTOR TORQ. TUBE
M18084	-11	A2	FITTING-RCS PLUME DEFLECTOR
M18087	-11	A1	RODEND- PLUME DEFLECTOR
-66533	-1,-3 -5,-7,-9	A3	STRUT ASS'Y
-18641	-11,-13,-15	A4	STRUT-PLUME DEFLECTOR SPT.
-18643	-13	A4	STRUT-PLUME DEFLECTOR
M18056	-13	A3	RODEND-DEFLECTOR LOWER STRUT

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3499 G PKG 2 PG 7 (5)

REASON FOR EO: ADD'L REQ'MTS

DESCRIPTION OF EO: FOR DASH NOS.* ADDED LM-7(37) LFM268, LM-8(38) THRU LM-14(44) EFFECTIVITY

GAEC EO RELEASE: ⓪ LR 9-8-69; JK 9/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38) THRU LM-14(44)	
LM	LFM268	LM-7(37)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	DATE	9-6-69	9-8-69		9/6/69	9-6-69		9/8/69
					PST VDI	MD THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	W/M STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO280 | EO NO.: 1663

9/5/69 ISSUED BY P. GARAHAN / P. THORJUSEN X87222 SECTION VD I GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1704
CONTROL INFO NO. LDW. JB8900

ON DASH Nos. ✱ OF THE FOLLOWING DWGS, REDUCE QTY REQD/VEHICLE AS NOTED.

DWG No.	DASH No. ✱	CHANGE No.	TITLE	QTY/VEH ■ IS	QTY/VEH ▲ WAS	
✓ LDW280-18682	-11	A2		4	8	LM-10 (40) THRU LM-14 (40)
✓ -18641	-11, -13, -15	A5		4 EA	8 EA	
✓ -18643	-13	A5		2	4	
-66535	-1-1	A6	SEE DWG	2	4	
-66532	-5-1	B5		2	4	
LDW280-18683	-11	A2		228	456	LM-10 (40) THRU LM-14 (44)

DETAIL EC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 96

(5)

REASON FOR EO: REMOVE EXISTING DEFLECTORS FROM QDS I & IV

DESCRIPTION OF EO: ON - ✱, QTY ■ REQD/VEH WAS ▲

GAEC EO RELEASE: 10-6-69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10/2/69			10-2-69	10/3/69		10/3/69	10-6-69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1704

10/6/69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. No. W280-18643 EO NO. A6

CONTROL INFO NO. LM-5-23203

1) REF EO A2: ADD THE FOLLOWING TO THE END OF NOTE ∗ "(EFF. LM-5 THRU LM-9, DVT, & QUAL TEST ONLY)"

2) ; ADD NOTE ∗∗

∗∗. "PART SHALL BE IMMERSION PHOSPHATE COATED PER LSP 14-9022 (COAT I.D. AND O.D.). DO NOT APPLY SUPPLEMENTARY OIL FINISH PER PARA. 3.5.7. PARTS WILL BE PAINTED ON LATER ASSY."

∗∗ DENOTES NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 3994

REASON FOR EO: TO AGREE WITH INSTL DWG. & TO PROVIDE RUST PREV. COATING. (REF. RTE LM05-131-1158)

DESCRIPTION OF EO: ON-13 ADDED NOTE ∗, RESTRICTED NOTE ∗ OF EOA2 TO LM-5 THRU LM-9, DVT, & QUAL TEST.

GAEC EO RELEASE: CW

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	THRU
		LM-13 (43)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

DATE: 8-20-70

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					KC	CH		
DATE	8-31-70			8-31-70	8/25/70	8-24-70	9/1/70	8/24/70
	VDI							

PRIORITY: C

DRAWING TITLE: STRUT CNTR. D/S PLUME DEFLECTOR

DRAWING NO. LDW 280-18643 EO NO. A6

ISSUED BY LIAISON R. SCRANTON/A. WILSON X86755 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18643 | EO NO. A7
CONTROL INFO NO. LDW280C1018

THIS IS A REVISION OF EO A-6

ADD THE FOLLOWING TO END OF NOTE * (REF EO A2)
" EFF LM-5(35) THRU LM-9(39), DVT & QUAL TEST ONLY"
SHOULD BE
" EFF LM-5 (35) THRU LM-7(37), DVT & QUAL TEST ONLY

(REF EO A-6) NOTE **. PART SHALL BE IMMERSION PHOSPHATE COATED PER LSP 14-9022 (COAT I.D. & O.D) DO NOT APPLY SUPPLEMENTARY OIL FINISH PER PARA. 3.5.7. PARTS WILL BE PAINTED ON LATER ASSY EFF LM-10(40) THRU LM-13(43) SHOULD BE EFF LM-8 (38) THRU LM-13 (43)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 3499

REASON FOR EO: TO AGREE WITH INSTL DWG & PROVIDE RUST PREV. COATING (MWC)

DESCRIPTION OF EO: (THIS IS A REVISION OF EO A-6) ADD THE FOLLOWING TO NOTE *(REF EO A2) EFF LM-5(35) THRU LM-7(37) DVT & QUAL TEST (WAS) EFF LM-5(35) THRU LM-9(39) DVT & QUAL TEST. ; EFF OF NOTE ** (REF EO A-6) LM-8(38) THRU LM-13(43) (WAS) EFF LM-10(40) THRU LM-13(43)

GAEC/EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-8 (38)	
		THRU	
LM		LM-13(43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY					NM			
DATE	10/7/70			10/7/70	10/7/70		10/7/70	10/7/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT~D/S~CENTER~PLUME DEFLECTOR	LDW280-18643	A7

ISSUED BY G. BELEV~G. HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18643
EO NO. A8
CONTROL INFO NO. LDW28C,C1017

REVISE NOTE * (REF EO A1) AS NOTED

NOTE *: PARTS MAY BE CHEM-MILLED OR MACHINED TO DIMENSIONS SHOWN (ADD) EXCEPT THICKNESS AFTER MACHINING CENTER PORTION OF O.D. TO BE .020 $^{+.008}_{-.002}$ (EFF LM-8(38) THRU LM-13(43))

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: INCREASED TOLERANCE REQD TO FACILITATE MANUFACTURE (MWC)

DESCRIPTION OF EO: ADDED TO NOTE * (REF EO A1): EXCEPT THICKNESS AFTER MACHINING CENTER PORTION OF OD TO BE .020 $^{+.008}_{-.002}$, EFF LM-8(38) THRU LM-13(43)

GAEC / EO RELEASE ②

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-8(38)	
		THRU	
LM		LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REWORK REQD SCRAP

APPROVED BY								
					NM			AC
DATE	10/7/70			10/7/70	10/7/70		10/7/70	10-7-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STRUT~D/S~CENTER~PLUME DEFLECTOR
DRAWING NO.: LDW280-18643
EO NO.: A8

ISSUED BY G.BELEV~G.HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18645

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LM-14(44)	1
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LTA-11(23)	
LM	LDW280-60628	LTA-3DR/1(460)	1

PART NO. LDW280-18645-3

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60628	LM-14(44)	2
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LTA-11(23)	
LM	LDW280-60628	LTA-3DR/1(460)	2

PART NO. LDW280-18645-1

GAEC SCH NO. 51-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

WORK PKG FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16 10/11/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3994 PKG 87

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A. SCHMADTKE 10-4-69

LAYOUT BY B. BEHAN RCB 10-7-69

CHECKED BY D. FASS 10-8-69

GR LEADER Thomson 10-9-69

VEH DES INT 10/10/69

STRUCT N.M 10/10/69

STRUCT 10/10/69

PROJ ENGR 10/10/69

REL GROUP Baumann 10-11-69

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE ASSEMBLY
DESCENT STAGE - R.H. AFT BEAM PANEL
QUAD III - GOX MODULE LINES SPRT

SIZE B

CODE IDENT NO. 26512

LDW280-18645

SCALE NONE

SHEET 1.00 OF 3

CDR 10-24-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					-3	-1											
								NAS1097AD3	E	RIVET	IND STD						
					1	1		NAS680C3		NUT PLATE	IND STD						
					1			LDW280-18645-13		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 2 X 2	T6	88	
						1		-11		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 2 X 4	T6	88	
								-3		ANGLE ASSY					NONE	NONE	
								LDW280-18645-1	E	ANGLE ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18645

SCALE NONE

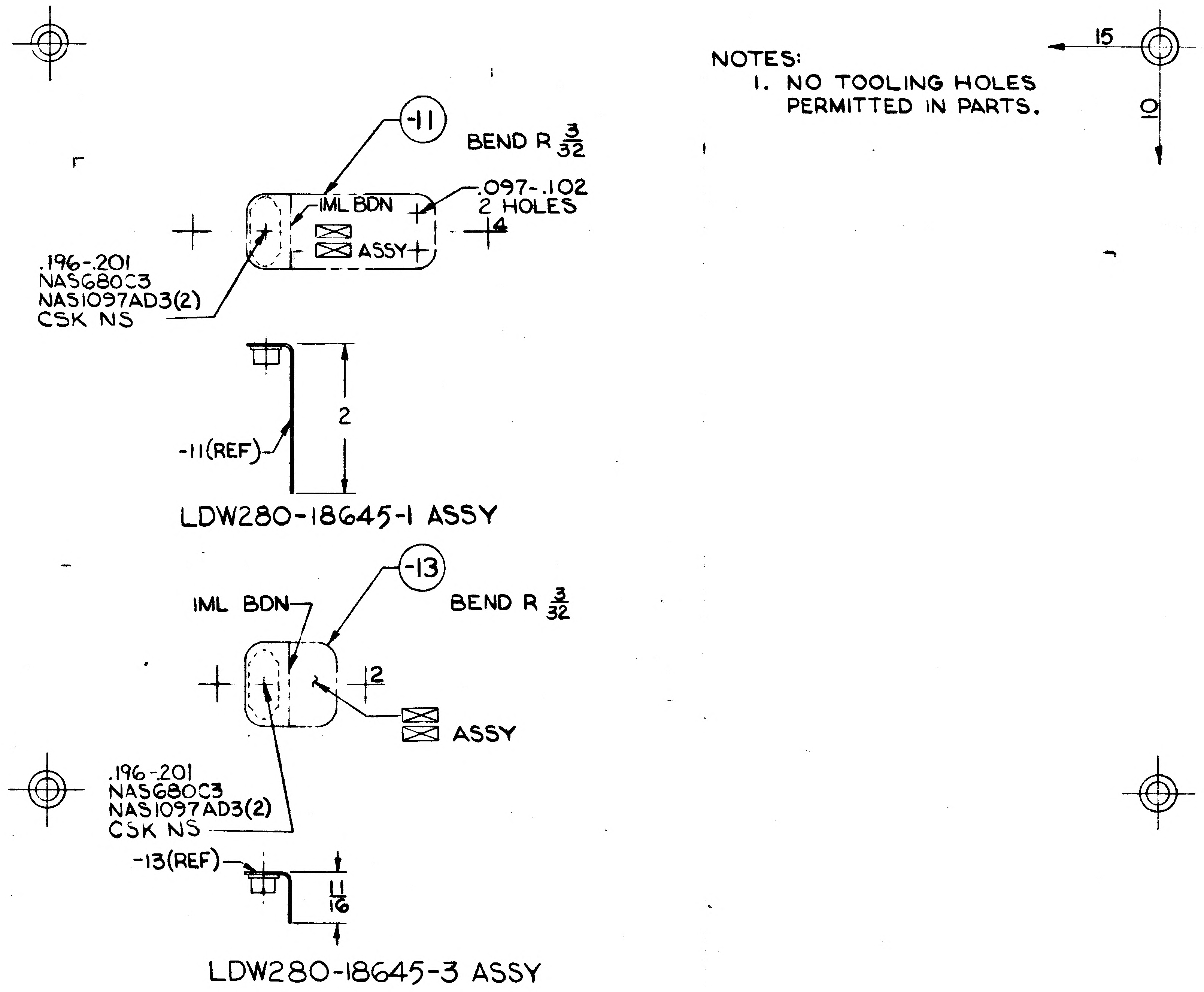
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

TRAM O.K
T.S 10-4-69


15
10
-11
BEND R $\frac{3}{32}$
IML BDN
.097-.102
2 HOLES
4
ASSY
.196-.201
NAS680C3
NAS1097AD3(2)
CSK NS
2
-11(REF)
LDW280-18645-1 ASSY
-13
IML BDN
BEND R $\frac{3}{32}$
2
ASSY
.196-.201
NAS680C3
NAS1097AD3(2)
CSK NS
-13(REF)
$\frac{11}{16}$
LDW280-18645-3 ASSY

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE C
CODE IDENT NO. 26512
LDW280-18645
MODEL OR END ITEM
SCALE FULL
SHEET 3.00

LDW280-18645
LDW280-18645

FOR PHOTO REPRODUCTION

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1737
CONTROL INFO NO. LDW28089178

REMOVE LTA-3 D/R-1(460) EFFECTIVITY FROM THE FOLLOWING DWGS. FOR N/A LDW280-60628.

PART NO. *	CHANGE NO.	DWG. NOMENCLATURE
✓ LDW280-18552-11,-15,-16,-17,-18	A1	SEE DWG
✓ LDW280-18600-13,-15,-16,-17,-19	A1	
✓ LDW280-18603-11,-13,-15	A1	
✓ LDW280-18645-1,-3	A1	SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994	PKG 87 (5)

REASON FOR EO: PARTS NOT REQ'D FOR STATIC TEST VEHICLE

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF * BY REMOVING LTA-3D/R-1(460)

GAEC EO RELEASE: JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3D/R-1(460)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: REWORK / ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	10/22			10-21-69	10/22/69		10/23/69	10/23/69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 1737

10-31-69
ISSUED BY R. BEHAN x86046 SECTION VDI GROUP NO. 335 PL 25

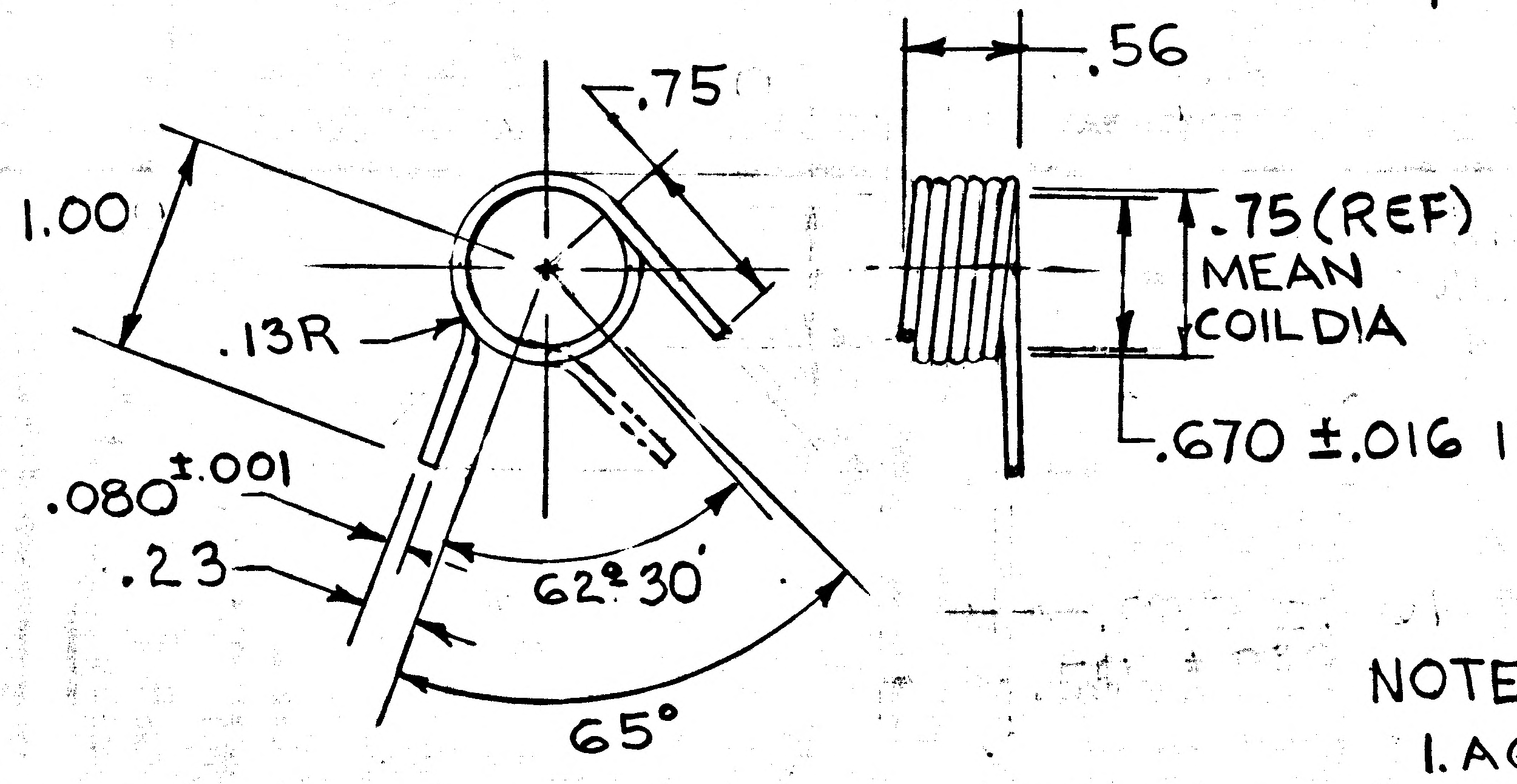
01 NAS 9-1100

ENGINEERING INFORMATION ONLY

DEFLECTION RATE: 25.3 IN-LB / 360° | MAX.LOAD IN RANGE: 4.5 IN-LB

DESIGN SPRING LIFE 10^6 CYCLES AT STRESS RANGE 70 %

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	APPD ENGRG	GOVT



NOTES:

1. AGE TO CONDITION CH900 AFTER FORMING

NOTES CHECKED ✓ APPLY TO THIS DRAWING

✓	NO. OF ACTIVE COILS: 5.8	✓	STRAIN RELIEVE AFTER FORMING.
	SPRING TO OPERATE INSIDE OF	✓	MAGNAFLUX
✓	SPRING TO OPERATE OVER .600 DIA PIN		END LOOP MEAN DIA TO BE SAME AS COIL MEAN DIA UNLESS OTHERWISE SPECIFIED
✓	TOLERANCE ON PROPORTIONATE LOAD ± 10%		GAP IN END LOOPS SHALL BE EQUAL TO ONE WIRE DIA UNLESS OTHERWISE SPECIFIED
	INITIAL TENSION:	✓	FINISH: DRY FILM LUBRICANT PER LSP-14-10300 TYPE II
✓	DIRECTION OF COILING: AS SHOWN	✓	INSPECTION TEST LOAD 4.5 IN-LB @ 65°

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18646-11	E	CRES	AMS 5673	17-7 PH COND C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60507	TM-11(50)	1
↑	↑	LTA-11(23)	↑
		L 1-14(44)	
		LM-13(43)	
		LM-12(42)	
↓	↓	LM-11(41)	↓
LM	LDW280-60507	LM-10(40)	1

PART NO. LDW280-18646-11 | GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ — DECIMALS — ANGLES .XX ±.03 .XXX ±.010 ±4°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3994 PKG #73	

CONTRACT NO.	NAS 9-1100
DRAWN BY	A. TIENKEN
LAYOUT BY	A. TIENKEN
~~CHECKED BY~~	1-14-70
GR LEADER	1/16/70
VEH DES INT	Thorjusen 1-16-70
STRUCTURES	
STRUCTURES	W/H 1-16-70
MAT'LS	R.A. Hoffman 1/16/70
PROJ ENGR	Thorjusen 1-16-70 1/19/70

LINE ITEM | DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TORSION SPRING
DESCENT STAGE - QUAD IV
MESA DEPLOYMENT MECHANISM

SIZE	CODE IDENT NO.	
B	26512	LDW280-18646

SCALE NONE | SHEET 1:00 OF 1

GRUMMAN REF INFO	PRIM NO.	
	207	ME-16- 1/20/70

ENG 77.11 9-64

CDR 1-24-70 DISTR LIST NO 24

01

NAS 9-1100

ENG 32.1 REV 3-65

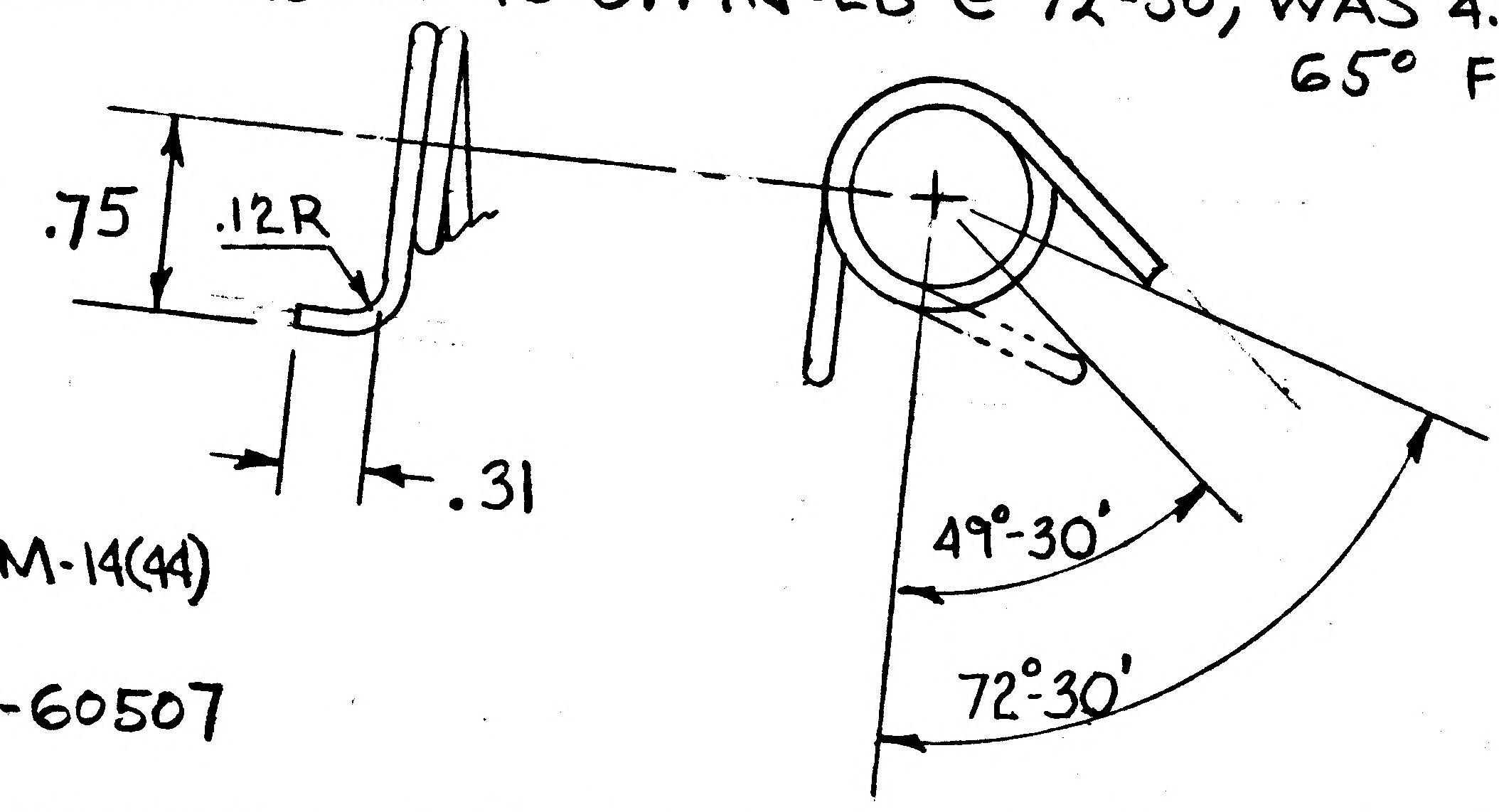
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18646	EO NO.	A1
CONTROL INFO NO.	LDW 280B9877		

REMOVE -11

ADD-13 IN FLD & BM WHICH IS IDENTICAL TO -11 EXCEPT AS NOTED.

FOR-13: MAX LOAD IN RANGE IS 5.1 IN-LB, WAS 4.5 IN-LB FOR -11
NO OF ACTIVE COILS IS 5.9, WAS 5.8 FOR -11
INSPECTION TEST LOAD IS 5.1 IN-LB @ 72°-30', WAS 4.5 IN-LB @ 65° FOR -11



-13 EFF LM-10(40) THRU LM-14(44)
LTA-11(23) & TM-11(50)
1 REQ'D / N/A LDW 280-60507

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	3994 PKG 73	(5)

REASON FOR EO: TO PROVIDE ADDITIONAL SUPPORT FOR SPRING

DESCRIPTION OF EO: ADDED -13 REMOVED -11.

GAEC EO RELEASE: JK 2/2/70

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		LTA-11(23) &	TM-11(50)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	~~REWORK~~	-11 SCRAP

APPROVED BY	PGT			SWF	WPA		PGT	GM
DATE	1-28-70			1/28/70	1/29/70		1-30-70	2/2/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TORSION SPRING-DES STAGE QUAD IV - MESA DEPLOY MECH	LDW 280-18646	A1

CDR 1-30-70

ISSUED BY TIENKEN, G. HANSMANN X 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18646
EO NO. A2
CONTROL INFO NO. LDW280C0157

ADD -15 IDENT TO -13 EXCEPT FOR REVISION PER NOTE ✱
NOTE ✱: THE VENDOR SUPPLIED LEAD COATING/MANUFACTURING AID SHALL BE REMOVED FROM ALL SURFACES PRIOR TO ANY APPLICATION OF HEAT. THIS LEAD COATING SHALL BE REMOVED BY IMMERSION IN ENSTRIP "A" SOLUTION (PER LSP-14-8060A) UNTIL ALL TRACES OF IT ARE REMOVED.

✱ USE NEXT AVAILABLE NOTE NO.

-15 EFF LM-10(40) THRU LM-14(44), LTA-11(23), TM-11(50)
N/A LDW280-60507, 1 REQD/VEH.
REMOVE -13 FROM MOD/BLK

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 73

REASON FOR EO: TO ELIMINATE LIQUID METAL CORROSION

DESCRIPTION OF EO: ADDED -15 REMOVED -13
ADDED NOTE ✱

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(44) THRU	
		LM-14(44) LTA-11(23)	
		TM-11(50)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-13

APPROVED BY								
DATE	3-18-70	[illegible]	3-18-70	3/18/70	3/18/70		3/15/70	3/20/70
	VDI	THERMO SUPPORT	MAT'LS ~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TORSION SPRING~DESCENT STAGE QD IV ~ MESA DEPLOY MECH	LDW280-18646	A2

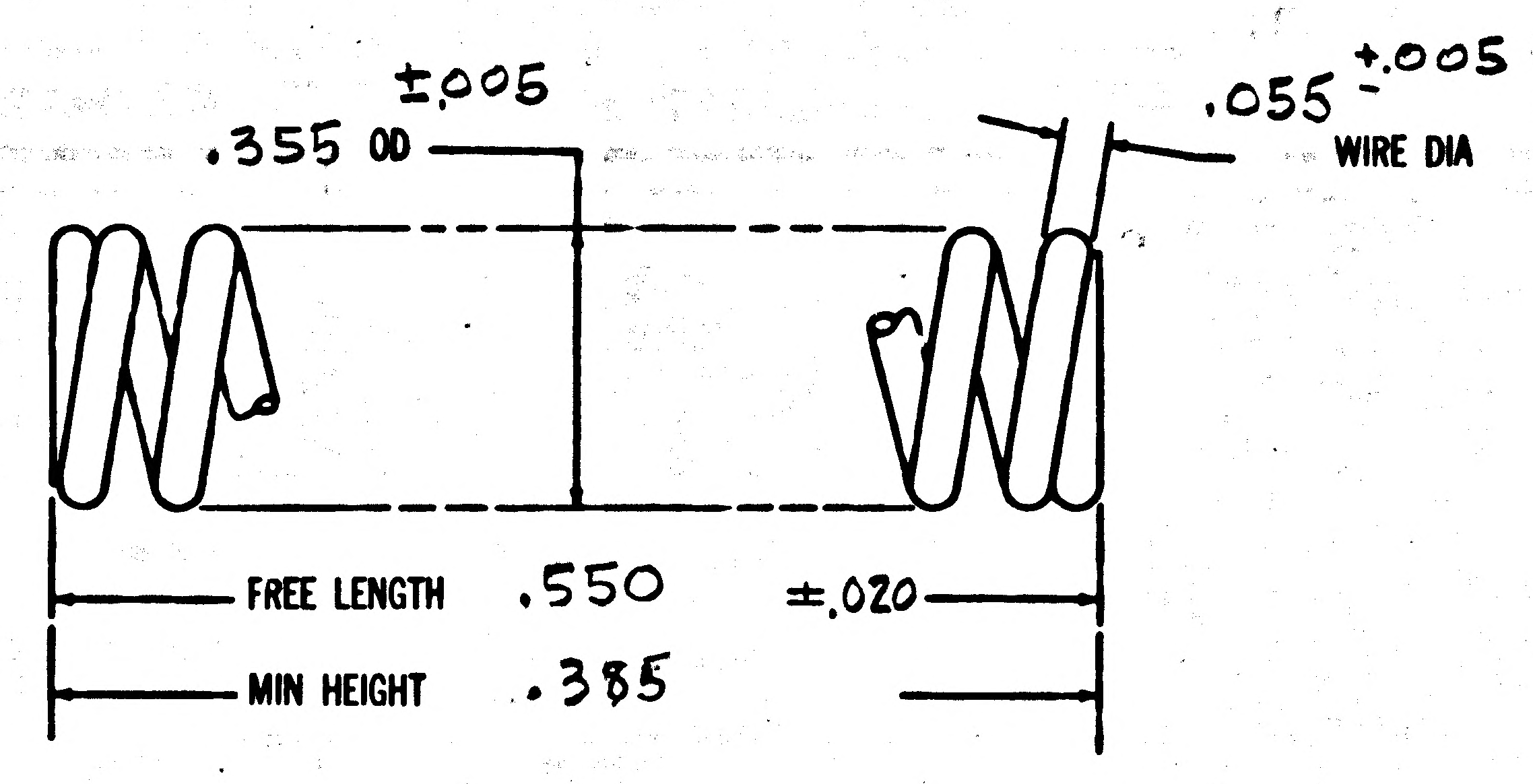
3/20/70
ISSUED BY J. PEDERSEN/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENGINEERING INFORMATION ONLY			
DEFLECTION RATE: 96 LBS/INCH		MAX. LOAD IN RANGE: 12 LBS	
DESIGN SPRING LIFE 10,000		CYCLES AT STRESS RANGE 50 %	

CHG LTR	ITEM NO.	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION OF REVISIONS	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	APPD	
							REWORK	SCRAP		ENGRG	GOVT



MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23650	DVT(70)	1
		TM5(65)	
		LM15(45)	
		THRU	
LM	LDW280-23650	LM5(35)	1

NO. OF ACTIVE COILS: 5 1/2	TOLERANCE ON PROPORTIONATE LOAD ± 10% UP TO .125 FROM SOLID HEIGHT
NO. OF TOTAL COILS: 7	SPRING TO OPERATE INSIDE OF .375 MIN DIA; OUTSIDE OF DIA
ENDS TO BE CLOSED ~~AND GROUND SQUARE~~	STRAIN RELIEVE AFTER FORMING. MAGNAFLUX IF WIRE DIA IS GREATER THAN .063
DIRECTION OF COILING OPTIONAL ✓	INSPECTION TEST LOAD AT .425 INCHES TO BE 12 LBS ±10%
	FINISH: NONE

PART NO.	I&T:	MATERIAL	GOVT SPEC	COMMERCIAL SPEC
LDW280-18650-11	E	MUSIC WIRE	QQ-W-470	MUSIC WIRE

PART NO. LDW280-18650-11

GAEC SCH NO. 50

WORK PKG FUNCTION NO. 111 5

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS — DECIMALS — ANGLES ± 1/32 ±.020 ± 1/2°

B	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3075 PKG3 LCD 2011 PKG 18	

LCD 3128 PKG 3 CCA 586 CCA 608

GRUMMAN REL INFO	PRIM NO.	HF-001		
	207	MP-16	9/4/68	

ENG 77.12 9-64

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. LANG	
LAYOUT BY	J. LANG	
~~CHECKED~~ BY	W. Murphy	
GP LEADER	Thompson 8-29-68	
VEH DES INT	J. Russton 8/29/68	
STRUCTURES		
STRUCTURES	WJH 8/30/68	PROJ ENGR J. Russton 8/30/68
WEIGHTS		RELEASE Bauman 9-4-68

GRUMMAN AIRCRAFT ENGRG. CORP
BETHPAGE, L. I., NEW YORK

SPRING DESCENT STAGE - HANDLE RELEASE - MODULAR EQUIPMENT STOWAGE ASSY

SIZE	CODE IDENT NO.	
B	26512	LDW280-18650

SCALE NONE

SHEET 1.00 OF 1

CDR 90468

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18650
EO NO. A1
CONTROL INFO NO. LM-29-1279

FOR -11 SPRING

MAX LOAD IN RANGE 4 INCHES TO BE 11 LBS WAS 12 LBS

NO. OF ACTIVE COILS: 5 WAS 5½

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 3075, LCD 2011 CCA 586, LCD 3128 CCA 668, (29)

REASON FOR EO: CHG SPECS TO MEET DESIGN REQS

DESCRIPTION OF EO: FOR -11
MAX. LOAD IN RANGE 4 INCHES TO BE 11 LBS WAS 12 LBS.
NO. OF ACTIVE COILS: 5 WAS 5 ½.

GAEC EO RELEASE: VC

MODEL	EFFECTIVITY M ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-5(35) THRU 15(45)		
LM	TM-5/R(65)		
LM	DVT(70)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓		APPROVED BY			—	J. M.	W. F.		
				DATE 11/1/68			—	9-17-68	9-17-68	11/1/68	9-25-68
				9-17-68 VDI							

PRIORITY: C

SPRING DESCENT STAGE ~ HANDLE RELEASE ~ MDLR. EQUIP. STOWAGE

DRAWING NO. LDW280-18650

EO NO. A1

ISSUED BY LIAISON J. STECEWYCZ X7930 SECTION VEHICLE DESIGN GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS: ✱

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18650	A2	SEE DWG
-18656	A3	
-18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
	-	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

✱ APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -✱

GAEC EO RELEASE: SMB 5-1-69; JVC 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: REWORK; ✓ SCRAP

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAIS'N ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]			PSt	WH		Sap	JM
DATE	4/[illegible]/69			4-2-69	4/8/69		4/9/69	5/11/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1428

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1563
CONTROL INFO NO. LDW280B 8123

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted]).
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18631	SEE DWG	A2
—		
✓ 639		A2
650		A3
—		
657		A2
—		
—		
664		A4
LDW280-18666	SEE DWG	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 40 & 41 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/19/69; 8-15-69; REL

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
					N		
DATE	7-29-69			7/29/69	8-2-69		
	VDI						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1563

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1787
CONTROL INFO NO. LDW280B7923

FOR DASH NO.'S* NOTED ON THE FOLLOWING DWGS., N/A LDW280-23650 S/B LDW280-60650 FOR LM-10(40) THRU LM-14(44) & LTA-11(23) EFF. QTY. REMAINS THE SAME.

DWG. NO.	DASH NO.*	TITLE	CHG.
LDW280-18630	-5-2	SEE DWG.	A9
-18650	-11	↕	A4
M17866	-13	↕	A5
M18038	-11	↕	A4
LDW280M18039	-11	SEE DWG.	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LC 3994 PKG. 74 P. 1 (5)

REASON FOR EO: REDESIGN OF RELEASE MECH. DUE TO INCREASED LOADS ON LMMP

DESCRIPTION OF EO: FOR *, N/A LDW280-60650 WAS LDW280-23650 FOR LM-10(40) THRU LM-14(44) & LTA-11(23) EFF.

GAEC EO RELEASE: SALB 12-11-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44)	
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					UPS			
DATE		12/5/69		12/3/69	12/4/69		12/1/69	12/3/69

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO280
EO NO.: 1787

12/19/69
ISSUED BY L. KRAVITZ / G. HANSMANN ×87222 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18650
EO NO. A5
CONTROL INFO NO. LM-5-22488

REMOVE LM-9(39) THRU LM-14(44) & LTA-11(23)
EFF. FROM-11 MODEL BLOCK

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD5383

REASON FOR EO: PART NOT REQUIRED ON REDESIGNED INSTALLATION

DESCRIPTION OF EO: ON-11 REMOVED LM-9(39) THRU LM-14(44) & LTA-11(23)

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-9(39) THRU		LM-14(44)
	& LTA-11 (23)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY	RBT				KC	CH		
DATE	5-19-70			5/19/70	5/11/70	5-11-70	5/20/70	5/14/70
	VDI							

PRIORITY: C
DRAWING TITLE: SPRING - D/S - HANDLE RELEASE MODULAR EQUIP. STOWAGE ASSY.
DRAWING NO.: LDW280-18650
EO NO.: A5

ISSUED BY LIAISON R. CLARK C. COSMA X86755 SECTION V.D.I. GROUP NO. 280 PL 25

Q1

NAS 9-1100

LDW280-18651

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60519	TM-11(50)	4
		TM-5(65)	
		LTA-11(23)	
		LTA3DR/1(460)	
		LM-14(14)	
		LM-13(43)	
		LM-12(42)	
		LM-11 (41)	
LM	LDW280-60519	LM-10 (40)	4
PART NO. LDW280-18651-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60519	TM-11(50)	2
		TM-5(65)	
		LTA-11(23)	
		LTA3DR/1(460)	
		LM-14 (44)	
		LM-13 (43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60519	LM-10(40)	2
PART NO LDW280-18651-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60519	TM-11(50)	9
		TM-5(65)	
		LTA-11(23)	
		LTA3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60519	LM-10(40)	9
PART NO. LDW280-18651-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-15	PRIM NO.	SALB JK(001)	
		207	ME-16-	11/8/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES XX±.03 XXX±.010 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3994, PKG 72	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A MASONE 10-28-69		
LAYOUT BY	C. LEBO ℄		
CHECKED BY	J.D. COBB 10/31/69		
GR LEADER	Thorjusen 11-3-69		
VEH DESINT	11-3-69		
STRUCT	W 11/6/69	PROJ ENGR	11/7/69
STRUCT	W 11/6/69	REL GROUP	L. Marsh 11/7/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE ~ QUAD IV
MESA HINGE SUPPORT BEAM

SIZE	CODE IDENT NO.	
B	26512	LDW280-18651
SCALE	NONE	SHEET 1.00 OF 3

77.1 12-65

CDR 11-7-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18651-15	E	GUSSET	AL ALLOY SH	QQ-A-250/12	7075-T6	.063x2x4	NONE	88	
		LDW280-18651-13	E	STIFFENER	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS183A53BGx7	SEE NOTE #2		
		LDW 280-18651-11	E	STIFFENER	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS180A12DGx7	SEE NOTE #2		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18651

SCALE NONE SHEET 2.00

G 77.2 7-65

01

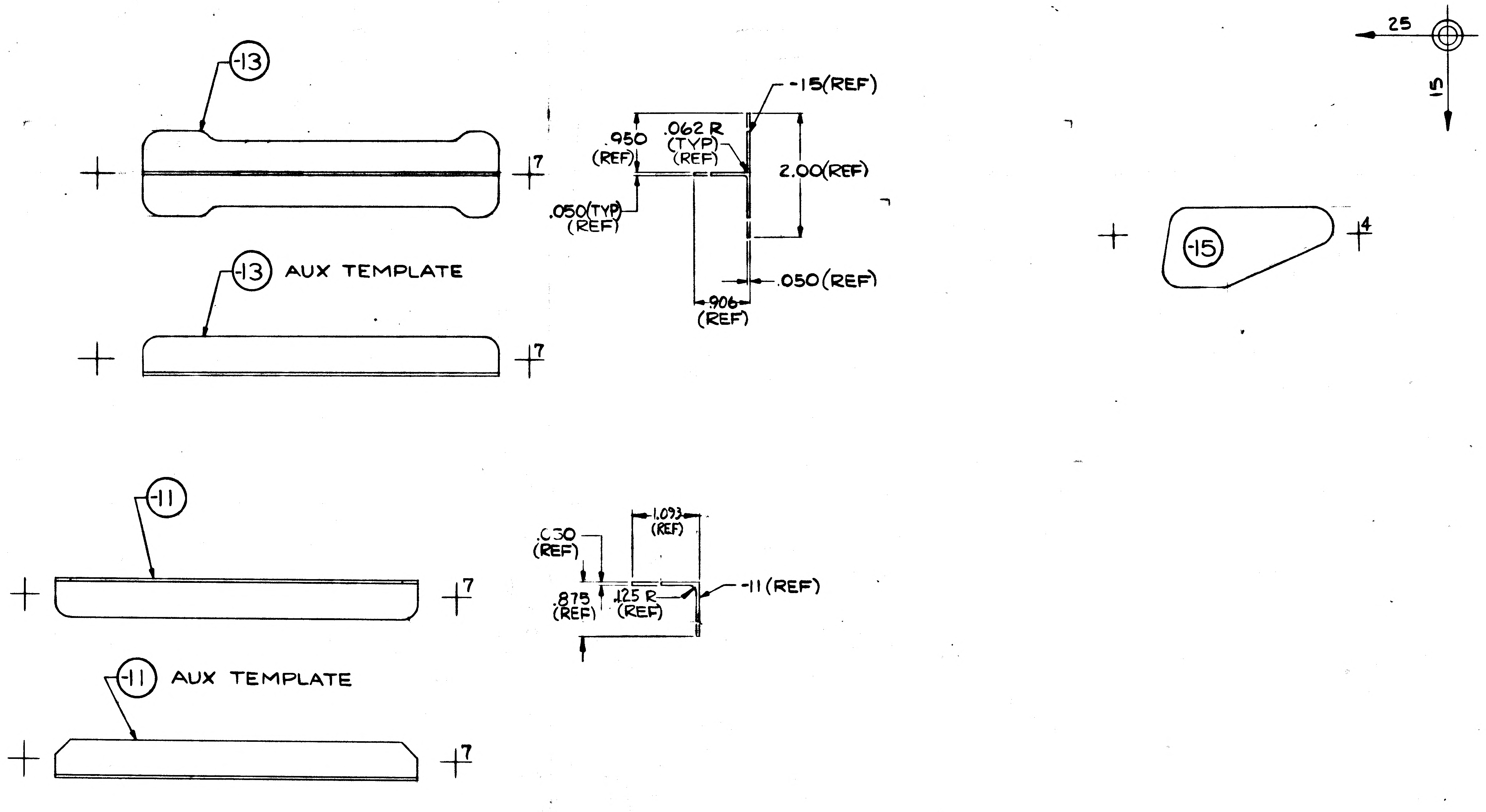
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.031	✓

NOTE :

1 NO TOOLING HOLES PERMITTED IN PARTS.

2. AGE FROM T6511 CONDITION TO T73 TEMPER BY AGING FOR 7½ TO 8½ HOURS AT 350°F ±10°F THEN SULFURIC ACID ANODIZE PER MIL-A-8625 TYPE II. AFTER ANODIZING PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP14-4305.



-13
7
-13 AUX TEMPLATE
7
-15(REF)
.062 R (TYP) (REF)
.950 (REF)
2.00(REF)
.050(TYP) (REF)
.050(REF)
.906 (REF)
25
15
-15
4
-11
7
-11 AUX TEMPLATE
7
1.093 (REF)
.030 (REF)
.875 (REF)
.125 R (REF)
-11 (REF)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18651
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18651
EO NO. A1
CONTROL INFO NO. LM-5- 22100

IN B/M

ON-13

GS183A53BGX7 S/B GS183A53DGX7

ON-11

GS180A12DGX7 S/B GS180C12DGX7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: DWG ERROR CORRECTION TO CONFORM WITH EXIST. STANDARD

DESCRIPTION OF EO:
IN B/M
ON-13 GS183A53DGX7 WAS: GS183A53BGX7
ON-11 GS180C12DGX7 WAS: GS180A DGX7

GAEC EO RELEASE: (5) R ✓ SNB 12-17-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY	PGT				DV	CR		
DATE	12/6/69			12/16/69	12-21-69	12-22-69	12/16/69	12/10/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: E

DRAWING TITLE: STIFFENER D/S-QUAD IV MESA HINGE SUPT. BEAM

DRAWING NO. LDW280-18651

EO NO. A1

ISSUED BY LIAISON, P. HUSTED, 86755 SECTION VDI GROUP NO. 335 PL 25

01

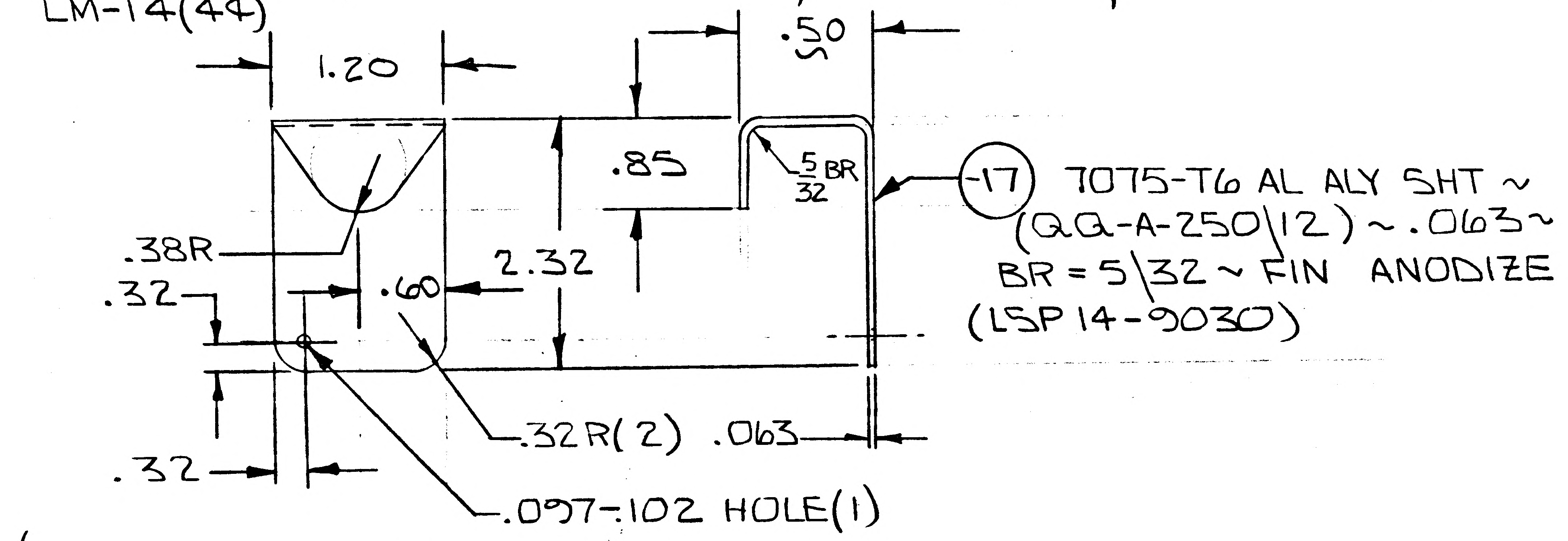
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18651		EO NO. A2
CONTROL INFO NO. LDW280B9614		

IN F/D, LM & M/B
ADD -17, N/A LDW280-60519, 1 REQD/VEH, EFF LM-10(40) THRU LM-14(44)



(-17) 7075-T6 AL ALY SHT ~ (QQ-A-250/12) ~ .063 ~ BR = 5/32 ~ FIN ANODIZE (LSP 14-9030)

(NOTE: PART IS TO BE LOFTED. DIMENSIONS FOR E.O. INCORP. ONLY)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PK 96 P.4 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE SUPPORT FOR FITH SHIELD	ADDED -17	JK 1/28/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
LM		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	1-26-70			1/26/70	1/27/70		1/27/70	1/28/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STIFFENER ~ D/S ~ QUAD IV MESA HINGE SUPPORT BEAM	LDW280-18651	A2

012770
ISSUED BY G.BELEV ~ G.HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18652

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60519	TM-11(50)	1
		TM-5(65)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LTA-11(23)	1
LM	LDW280-60519	LTA-3DR/1(460)	1
PART NO. LDW280-18652-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REC INFO

PRIM NO. 207 | FP001 | ME-16 | 10-31-9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS - ANGLES
XX ±.03 .XXX ±.010 ±0°30'

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3994 PKG 72

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J.VICINANZA 10/25/69
LAYOUT BY LEBO 4
CHECKED BY H. HICK 10-28-69
GP LEADER Thompson 10-31-69
VEH DES INT W. Phillips 10/31/69
STRUCTURES
STRUCTURES
PROJ ENGR R. Phillips 10/31/69
REL GROUP J. Marsh 10/31/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK (5)

WEB
DESCENT STAGE - QDRNT IV LWR DIAG - MOD EQUIP STOWAGE ASSY - SPRT BEAM

SIZE B | CODE IDENT NO. 26512 | LDW280-18652
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 110769

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18652-11	E	WEB	AL ALLOY SH.	QQ-A-250/12	7075-T6	.032×7×60	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18652

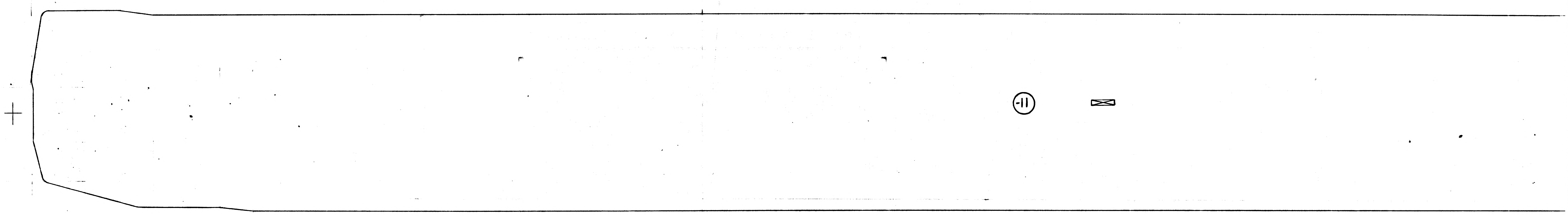
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

0 1

NAS 9-1100



CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18652	3

FRAME 1 FRAME 2

01/02 NAS 9-1100

TRAM O.K.
T.S. 10-23-69

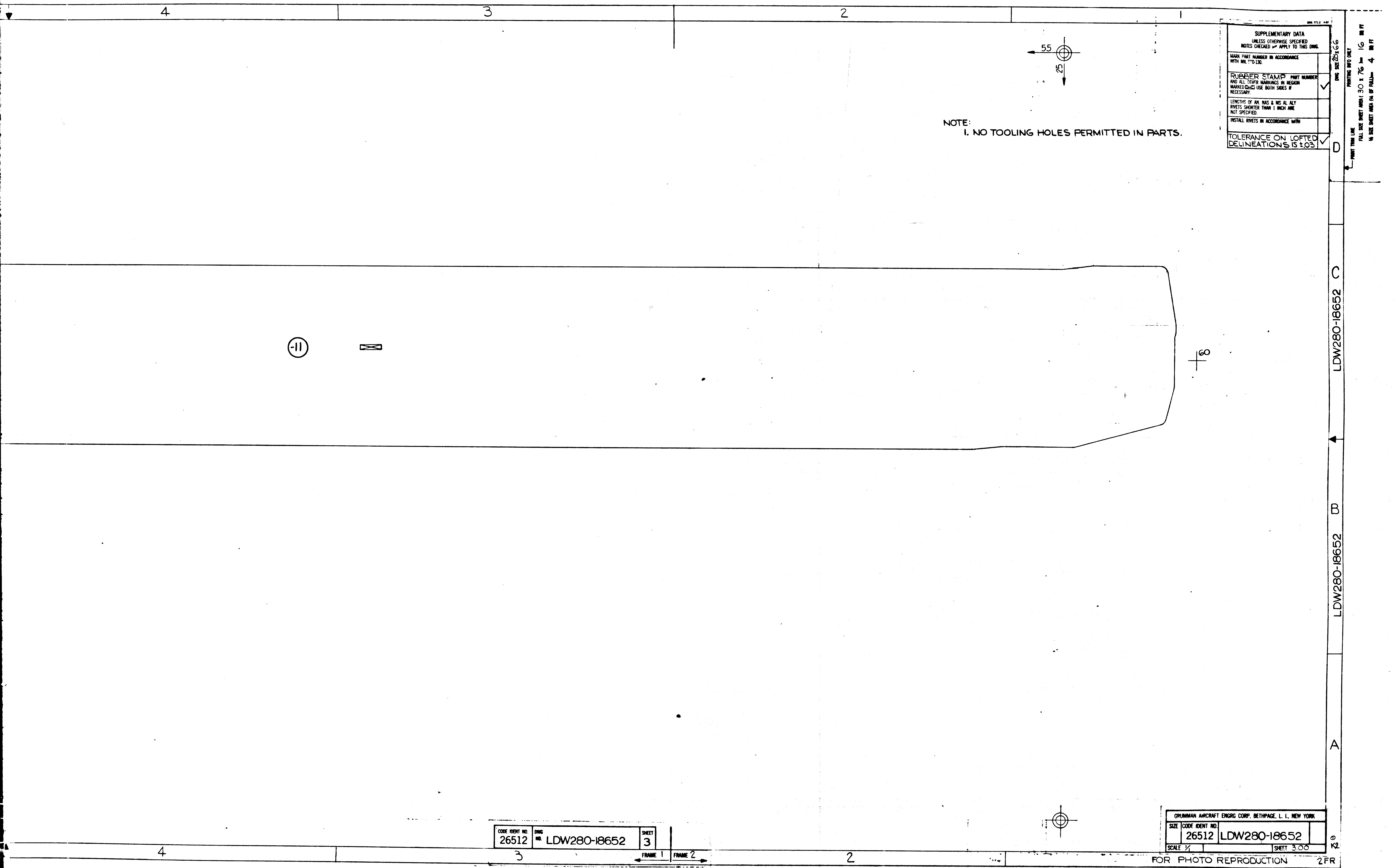
NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

DWG 771.2 4-67

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

DWG SIZE 28 x 66
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (30 x 76) = 16 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 4 SQ FT



CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18652	3

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
	26512	LDW280-18652	
SCALE 1/1		SHEET 3.00	

K2

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02/02 NAS 9-1100

ENG 32.1 REV 3-65

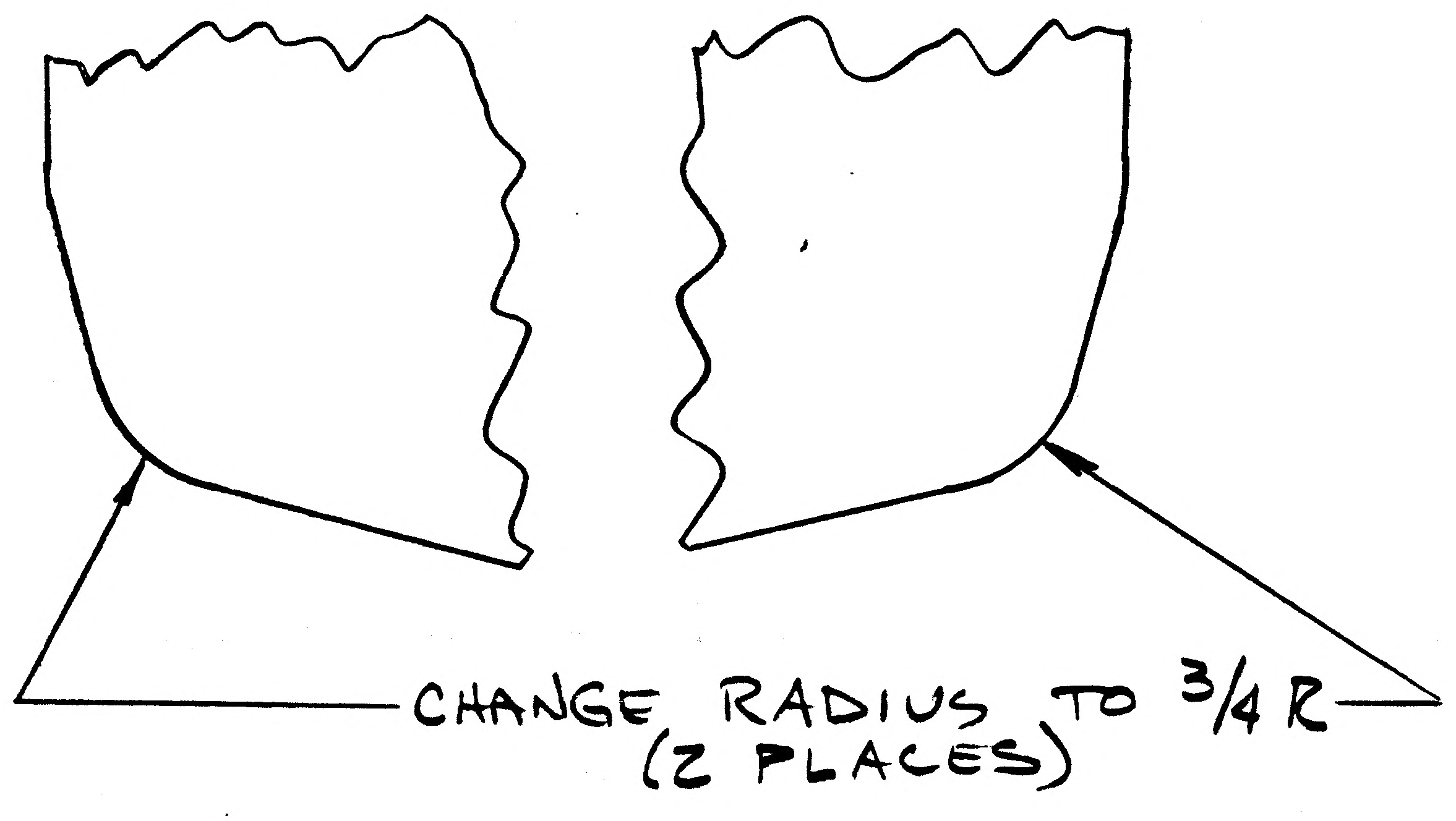
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18652 EO NO. A1

CONTROL INFO NO. LM-5-22178



LDW280-18652-11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒ LCD 3994 (5)

REASON FOR EO: TO INSURE PROPER FIT OF MATING PART

DESCRIPTION OF EO: ON -11
3/4 R WAS 1/4 R (2 PLACES)

R GAEC EO RELEASE: VC 1-28-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 OR 1 (460) LTA	-11 (23)
		LM-10 (40) THRU	LM-14 (44)
		TM-5 (65) T	M-11 (50)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY					DV			
DATE	1/12/70			1/12/70	1/12/70	1-12-70	1/27/70	1/12/70
	S/CAT	~~[illegible]~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB D/S~QDRNT IV LWR DIAG MOD EQ STOW	LDW280-18652	A1

ISSUED BY LIAISON A. WILSON 1/12/70 X86755 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18656

LFM

PART NO LDW280-18656-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	2
LM		LM-14(44)	2
LM		LM-13(43)	2
LM		LM-12(42)	2
LM		LM-11(41)	2
LM		LM-10(40)	2
LM		LM-9(39)	2
LM		LM-8(38)	2
LM		LM-7(37)	2
LM		LM-6(36)	2
LFM 200	LDW280-54576	LM-5(35)	2

PART NO. LDW280-18656-11,-13 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LM-15(45)	1
LM		LM-14(44)	1
LM		LM-13(43)	1
LM		LM-12(42)	1
LM		LM-11(41)	1
LM		LM-10(40)	1
LM		LM-9(39)	1
LM		LM-8(38)	1
LM		LM-7(37)	1
LM		LM-6(36)	1
LFM 200	LDW280-54576	LM-5(35)	1

PART NO. LDW280-18656-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54700	LM-15(45)	4
LM		LM-14(44)	4
LM		LM-13(43)	4
LM		LM-12(42)	4
LM		LM-11(41)	4
LM		LM-10(40)	4
LM		LM-9(39)	4
LM		LM-8(38)	4
LM		LM-7(37)	4
LM		LM-6(36)	4
LFM 200	LDW280-54700	LM-5(35)	4

PART NO. LDW280-18656-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
LM	LDW280-54700	LM-15(45)	4
LM		LM-14(44)	4
LM		LM-13(43)	4
LM		LM-12(42)	4
LM		LM-11(41)	4
LM		LM-10(40)	4
LM		LM-9(39)	4
LM		LM-8(38)	4
LM		LM-7(37)	4
LM		LM-6(36)	4
LFM 200	LDW280-54700	LM-5(35)	4

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED: A
LAST DASH NO. USED: -21
GRUMMAN REL INFO
PRIM NO. JK(001)
215 mP-16 3/4/11

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD2965-CCA1235

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	F.HIPPLER 8-23-68	RELIABILITY	
LAYOUT BY	ED COLEMAN	THERMO	T Nelson 9-5-68
CHECKED BY	N. Fazz 8-24-68		
GR.LEADER	E. Thomson 8-28-68		
VEH.DES.INT.	J. Custer 8/28		
STRUCTURES	N.M. 9/5/68	PROJ ENGR	J. Lusater 9/5/68
STRUCTURES	WJA 9/5/68	REL GROUP	J. Marsh 9-6-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE - LOWER THERMAL SHIELD-SCIENTIFIC EQUIP. BAY

SIZE B
CODE IDENT NO. 26512
LDW280-18656
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

PKG 2

CDR 092068

01
NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2		NAS1067C08	E	PLATE NUT	STD PART						
		NAS1097AD3		RIVET	STD PART						
		LDW280-18656-21		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.040 x3 x3	NONE	88	
1		-19						.040 x2 x3	NONE	88	
		-17						.032 x2 x3	NONE	88	
		-15						.032 x2 x3	NONE	88	
		-13						.032 x3 x3	NONE	88	
		-11		CLIP	AL ALLOY SH	QQ-A-250/4	2024-T3	.032 x3 x4	NONE	88	
		LDW280-18656-1	E	CLIP ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

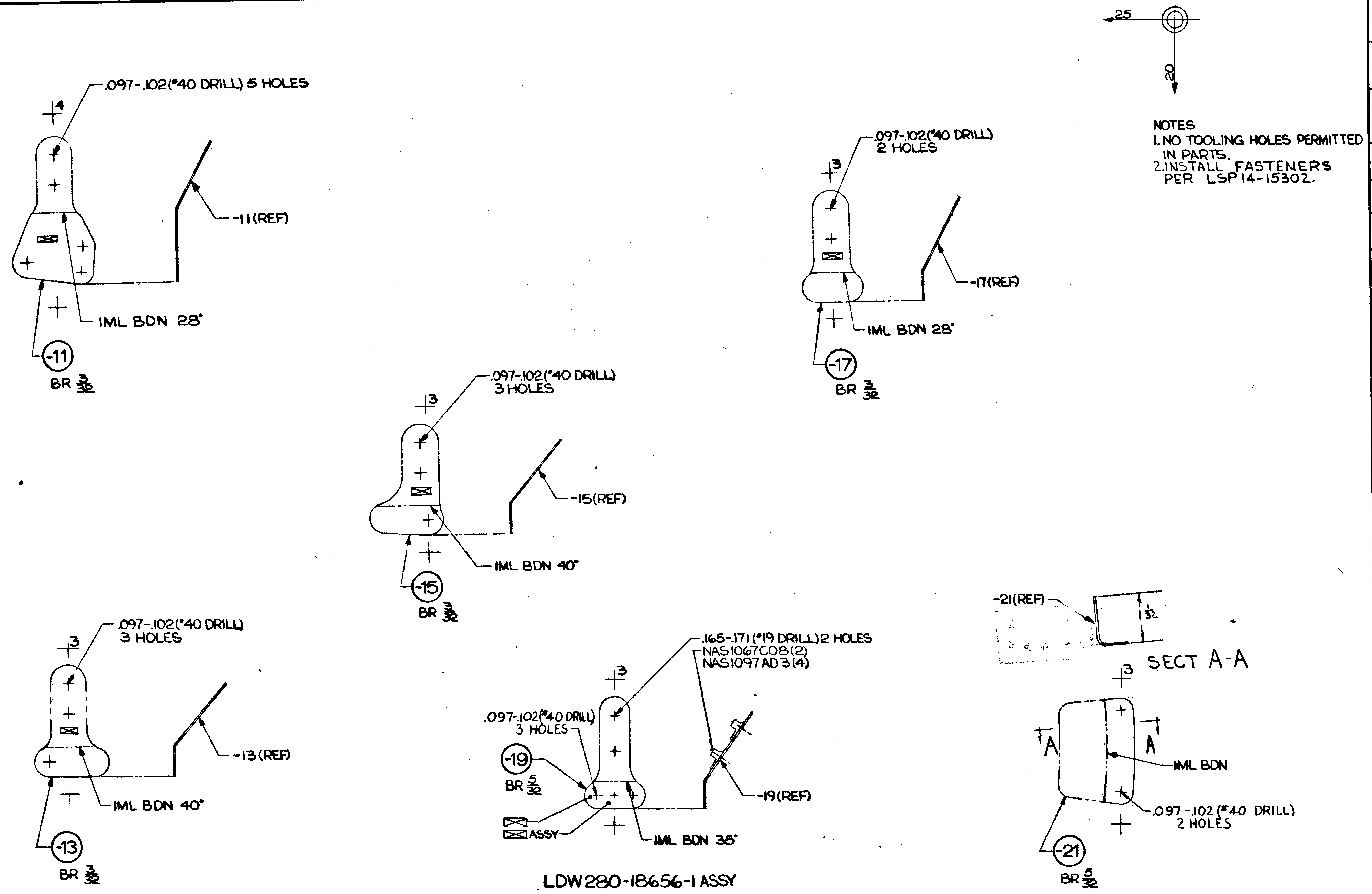
SIZE	CODE IDENT NO.	
B	26512	LDW280-18656

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


.097-.102(#40 DRILL) 5 HOLES
4
-11(REF)
IML BDN 28°
-11
BR 3/32
.097-.102(#40 DRILL) 2 HOLES
3
-17(REF)
IML BDN 28°
-17
BR 3/32
.097-.102(#40 DRILL) 3 HOLES
3
-15(REF)
IML BDN 40°
-15
BR 3/32
.097-.102(#40 DRILL) 3 HOLES
3
-13(REF)
IML BDN 40°
-13
BR 3/32
.165-.171 (#19 DRILL) 2 HOLES
NAS1067C08(2)
NAS1097AD3(4)
3
.097-.102(#40 DRILL) 3 HOLES
-19
BR 5/32
-19(REF)
ASSY
IML BDN 35°
-21(REF)
1 3/32
SECT A-A
3
A
A
IML BDN
.097-.102 (#40 DRILL) 2 HOLES
-21
BR 5/32
25
20

LDW280-18656-1 ASSY

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. INSTALL FASTENERS PER LSP14-15302.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	D	26512	LDW280-18656
	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1212
CONTROL INFO NO. LDW280B6005

	CHG LTR	DWG NO. *	RESTRICT FOR USE ON	WAS USED ON
✓	A2	LDW280-18601 -19	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
✓	A1	LDW280-18638 ✓ -1,-2,-3,-5,-6,-7,-9,-11 & -12	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70), LM-5(35) LFM 200
✓	A1	LDW280-18656-1 ✓	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
	A1	LDW280-18662 ✓ -17 & -21	LM-6(36) THRU LM-15(45) LM-5(45) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
	A2	LDW280-66655 -1	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35)	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35), DVT-70

* FOR TITLE SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965 PKG #2 CCA# 1235 (5)

REASON FOR EO: BASE HEAT SHIELD QUALIFICATION TEST

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING DVT-(70)

GAEC EO RELEASE: VC 11/11/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT-(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GVD
APPROVED BY	[illegible]		HFE	RSt	[illegible]		Jaf	Jm
DATE	11/7/68		11-7-68	11-7-68	11/7/68		11/7/68	11/11/68
	VD1							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1212

CDR 11/13/68
ISSUED BY D.SHAPIRO/P.THORTUSEN JR. X-1153   SECTION VDI   GROUP NO. 335   PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18656
EO NO. A2
CONTROL INFO NO. LDW280B6288

IN M/B RESTRICT -21 FOR USE ON LM-7(37) THRU LM-15(45)

(WAS) USED ON LFM200 LM-5(35), LM-6(36) THRU LM-15(45)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD2965 PKG2 CCA 1235

REASON FOR EO: TO FACILITATE INSTALLATION OF METEORITE SHIELDS (MFG REQUEST)

DESCRIPTION OF EO: IN M/B RESTRICTED -21 TO LM-7(37) THRU LM-15(35) by removing LFM200 LM-5(35), LM-6(36)

GAEC EO RELEASE: JK 11/26/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	11/15/68			11/15/68	11/18/68		11/19/68	11-25-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PRO' ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS-D/S-LWR THRML-SEQ BAY	LDW280-18656	A2

CDR112968
ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL. 25

01

NAS 9-1100

DWG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. /428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18650	A2	SEE DWG
-18656	A3	↑
-18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
-18666	A1	
-18667	A1	↓
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: (E) SMB 5-1-69; JK 5/2/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							
DATE	4/1/69			4-2-69	4/8/69	4/9/69	5/1/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280,
EO NO.: /428

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1612
CONTROL INFO NO. LDW280B 8437

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQMTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
LDW 280 M 17746	SEE DRAWING	LDW280-54576	A7
M17747		-54576	B2
M17781		-54576	A5
M17782		-54576	A5
M17783		-54576	A4
M17784		-54576	B2
M17777		-54576	A5
-18656		-54576	A4
M 71500		-54586	A2
LDW 280 M 71501		-54586	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3-90 PKG 70 PG 3,8 (6)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR /1 (460) REQ'MTS

GAEC EO RELEASE: 8-21-69; JK 8/26/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	8-8-69			8/4/69	8/12/69		8/12/69	8-25-69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1612

ISSUED BY A. FURIO 16046 8-26-69
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO 1648
CONTROL INFO NO. LDW280B7778		

REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY FROM ALL DASH NO.s OF THE FOLLOWING DWGS WHICH HAVE LM-10(40) EFFECTIVITY WITH LDW280-54700 N/A

DWG	TITLE	CHANGE NO.
LDW280-54700-*		C5
-18656		A5
-17863	SEE DWG	D1
-17864		C6
-18207		B2
LDW280-17862		C5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	LCD 3890 PKG 59 PG 1	(5)

REASON FOR EO: REDESIGN METEROID SHIELD FOR LARGER TANKS

DESCRIPTION OF EO: RESTRICTED (-*) BY REMOVING LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: SALB 8-25-69; JK 8/28/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY							
DATE	8-19-69			8/19/69	8/19/69		8/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1648

9-29-69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18657

LFM

PART NO. LDW280-18657-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66661	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM		LM-6(36)	1
LFM 200	LDW280-66661	LM-5(35)	1

PART NO. LDW280-18657-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	6
		LM-14(44)	6
		LM-13(43)	6
		LM-12(42)	6
		LM-11(41)	6
		LM-10(40)	6
		LM-9(39)	6
		LM-8(38)	6
		LM-7(37)	6
LM		LM-6(36)	6
LFM-200	LDW280-66663	LM-5(35)	6

PART NO. LDW280-18657-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
LM		LM-6(36)	2
LFM-200	LDW280-66663	LM-5(35)	2

PART NO. LDW280-18657-11 & -17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM		LM-6(36)	1 EA
LFM-200	LDW280-66663	LM-5(35)	1 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO	
		PRIM NO.	SK(001)
LAST DASH NO. USED	-19	215	MP-16 5/27/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965, CCA1235	

CONTRACT NO. NAS 9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	P. GARDIANOS 8-17-68		
LAYOUT BY	E. COLEMAN 8/17		
CHECKED BY	D. FASS 8-17-68		
GRP LDR	Thorgusen 8-20-68		
VEV DES INT	8/20/68		
STRUCT	N.M. 8/23/68	PROJ ENGR	8/22/68
STRUCT	8/23/68	REL GROUP	8-27-68
THERMO	8/26/68		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
- DESCENT STAGE
- LOWER THERMAL SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18657
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

PKG 2

CDR 083068

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18657-19	E	CLIP	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL4V ANNEAL'D	.040 × 1 5/8 × 2 1/2	NONE	NONE	
		-17	↑	↑	↑	↑	↑	.040 × 1 5/8 × 2 1/2	↑	↑	
		-15						.030 × 1 1/4 × 2 1/2			
		-13	↓	↓	↓	↓	↓	.040 × 1 5/8 × 2 1/2	↓	↓	
		LDW280-18657-11	E	CLIP	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL4V ANNEAL'D	040 × 1 5/8 × 2 1/2	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18657

SCALE NONE

SHEET 2.00

ENG 77.2 7-55

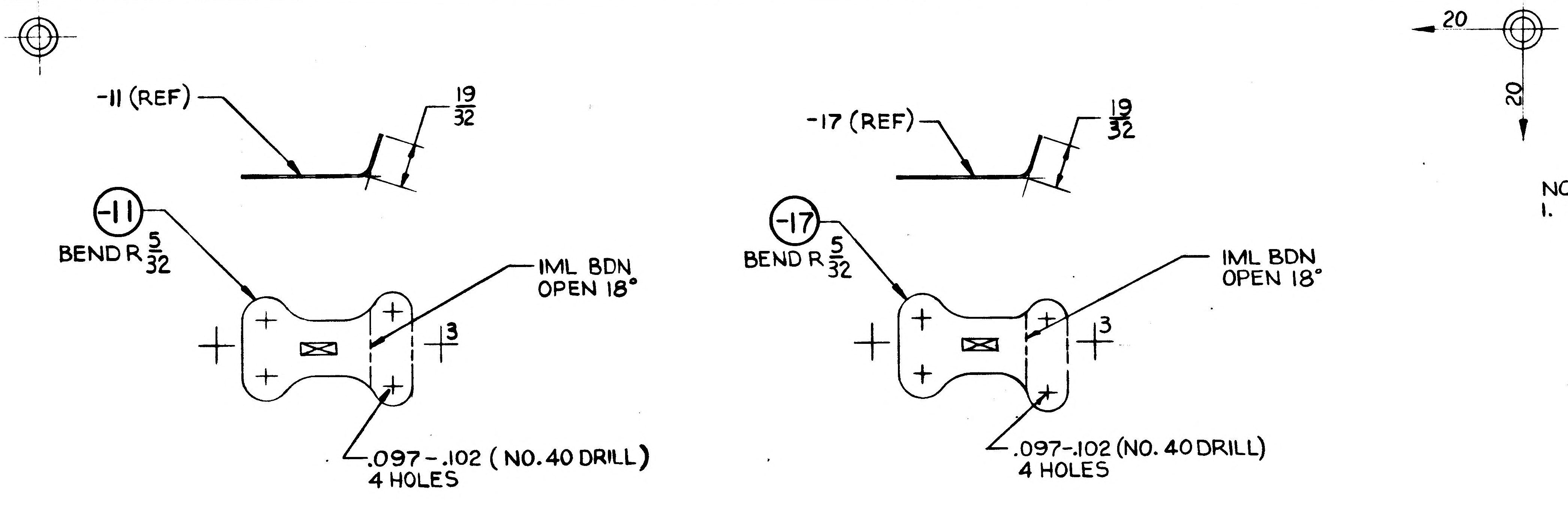
01

NAS 9-1100

LDW280-18657

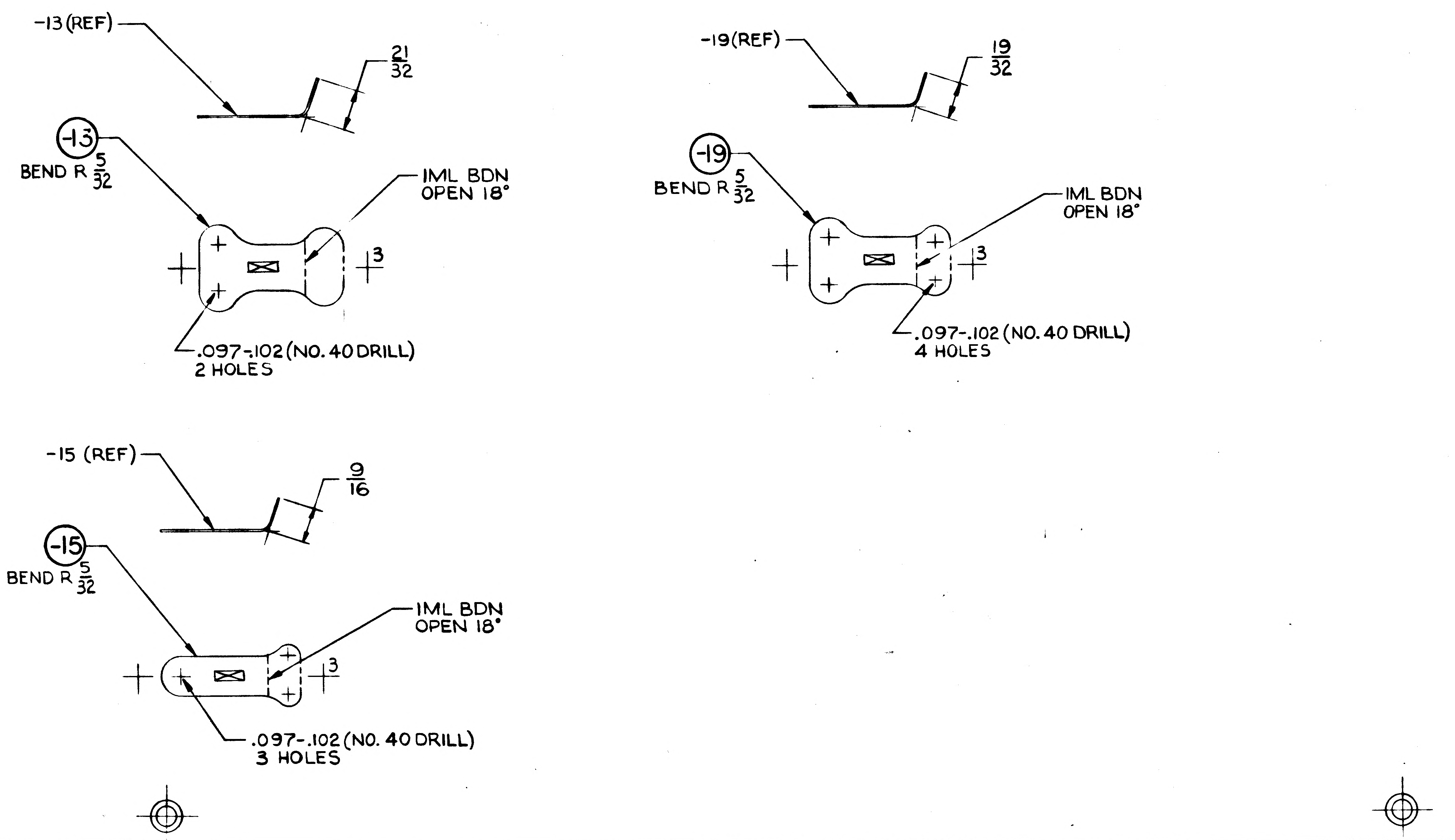
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



20
20
-11 (REF)
19/32
-11
BEND R 5/32
IML BDN
OPEN 18°
3
.097-.102 (NO. 40 DRILL)
4 HOLES
-17 (REF)
19/32
-17
BEND R 5/32
IML BDN
OPEN 18°
3
.097-.102 (NO. 40 DRILL)
4 HOLES

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



-13 (REF)
21/32
-13
BEND R 5/32
IML BDN
OPEN 18°
3
.097-.102 (NO. 40 DRILL)
2 HOLES
-19 (REF)
19/32
-19
BEND R 5/32
IML BDN
OPEN 18°
3
.097-.102 (NO. 40 DRILL)
4 HOLES
-15 (REF)
9/16
-15
BEND R 5/32
IML BDN
OPEN 18°
3
.097-.102 (NO. 40 DRILL)
3 HOLES

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18657

SCALE FULL
SHEET 3.00

ENG 73.3 REV 5-67

FOR PHOTO 2REPRODUCTION

K2

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18650	A2	SEE DWG
✓ -18656	A3	↑
✓ -18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
[illegible]		
-18666	A1	
-18667	A1	↓
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 6 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM - *

GAEC EO RELEASE: SmB 5-1-69; JK 5/2/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ. ENGRG.	EDIT
APPROVED BY				PGt	WJd			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280,
EO NO.: 1428

ISSUED BY: 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1563
CONTROL INFO NO. LDW280B81.3

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18631	SEE DWG	A2
—		
✓ 639		A2
✓ 650		A3
—		
✓ 657		A2
—		
—		
664		A4
LDW280-18666	SEE DWG	A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 40 & 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWK 8-13-69 ; K 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY				N			
DATE	7-29-69			7/29/69	8-2-69		8-15-69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

~~CONF~~ KEL

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO. LEO 280 | EO NO. 1563

8-29-67
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18659 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60624	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60624	LM-10 (40)	1 EA
PART NO. LDW280-18659-11 & -13		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10
REV	A	A
SHEET	2.00	
REV	A	
SHEET	3.00	
REV	A	

LAST SECT LTR USED —
LAST DASH NO. USED -13
GRUMMAN REL INFO
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XX=±.03, .XXX=±.010, ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD5538 PKG 50

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY J.BIANCHINO 5/12/70
LAYOUT BY R.CLARK
CHECKED BY Bookbinder 5-13-70
GP LEADER GWH 5-6-70
VEH DES INT PST 5-6-70
STRUCTURES CW 5-6-70
STRUCTURES
PROJ ENGR PST 5-6-70
REL GROUP J.GROD 5-6-70

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE - OXIDIZER
FILL DRAIN & BLEED DISCONNECT

SIZE B
CODE IDENT NO. 26512
LDW280-18659 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

5-8-70

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 & 3.00		②		✓		EO A1 LCD 5538	EO A1 INITIAL DWG RELEASE-PARTS MAD. PER EO JDC Boksinda 5-13-70	LM-10(40) THRU LM-14(44)	NOT	REQD	J. BIANCHINO 5-12-70		5/14/70

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES
A	5/14 RF.	5-14-70		CW 5-15-70

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18659	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18659-13	E	CHANNEL	AL ALLOY SH	QQ-A-250/4	2024	.032× 6 × 10	T3	88	
		LDW280-18659-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/4	2024	.032× 4 × 16	T3	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T3	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AEROSPACE CORPORATION , BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18659	A

SCALE NONE

SHEET 2.00

Ⓐ

ENG 77.2 7-64

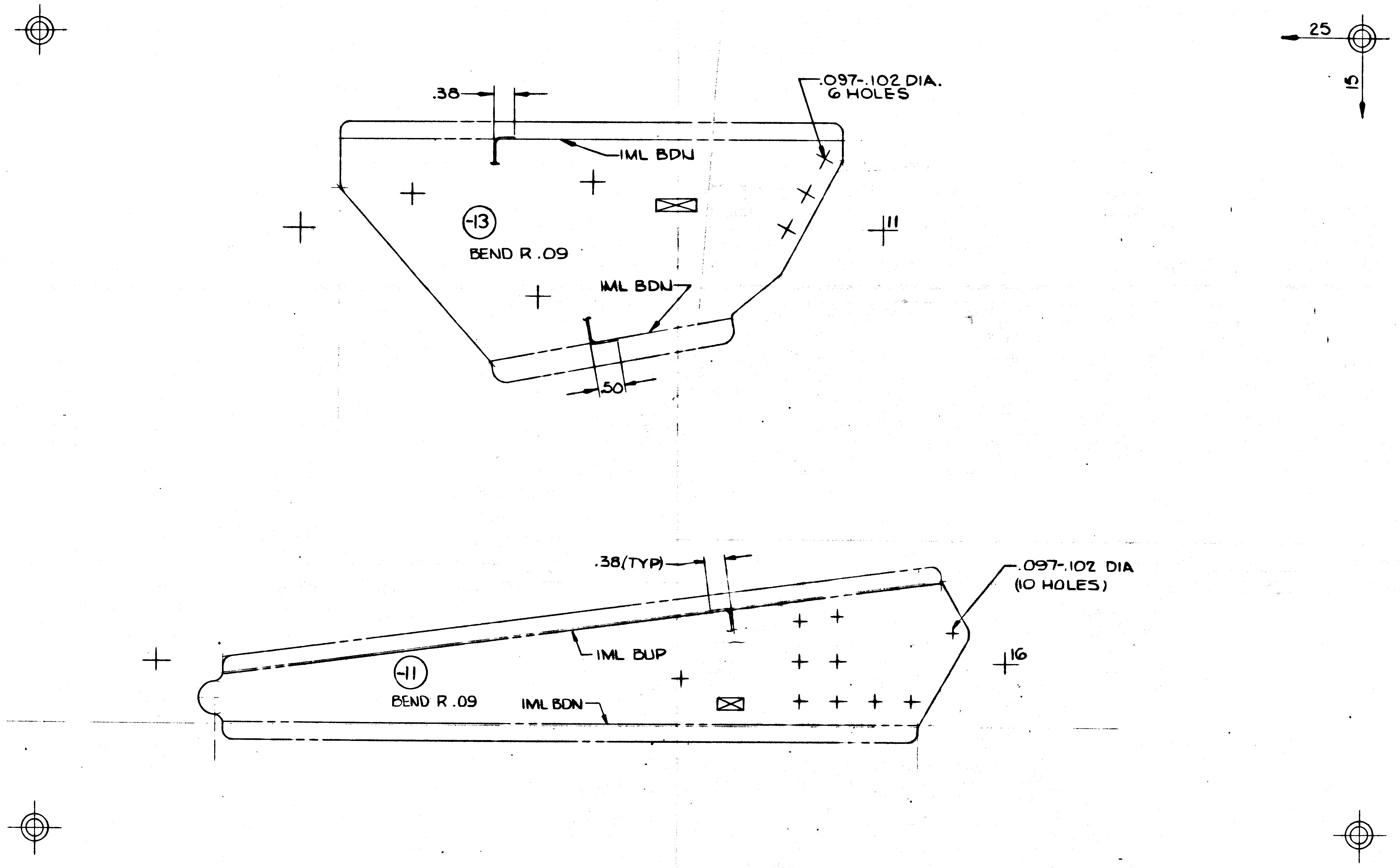
01

NAS 9-1100

LDW280-18659 A

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



.38
.097-.102 DIA.
6 HOLES
IML BDN
-13
BEND R .09
IML BDN
.50
11
25
15
.38(TYP)
.097-.102 DIA
(10 HOLES)
IML BUP
-11
BEND R .09
IML BDN
16

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18659	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1 K2

01

NAS 9-1100

LDW280-18661

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 164	LMU280-31217	M3/FVV(03)	18
LM	LDW280-54648	DVT(70)	18
		TM-5/R(65)	18
		LM-15(45)	18
		LM-14(44)	18
		LM-13(43)	18
		LM-12(42	18
		LM-11(41)	18
		LM-10(40)	18
		LM-9(39)	18
		LM-8(38)	18
		LM-7(37)	18
		LM-6(36)	18
		LM-5(35)	18
LM	LDW280-54648	LM-4(34)	18

PART NO. LDW280-18661-11	GAEC SCH NO.	

WORK PKG. FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-11	PRIM NO.	K(001)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD-1433(CC,586,111)	

CONTRACT NO.	NAS 9-1100		
DRAWN BY	R. LAMBERT 8-14-68	RELIABILITY	
LAYOUT BY	G. BELEV		Mulcahy 9/4/68
CHECKED BY	H. BERNSTEIN		
GR. LEADER	J Jorgensen 8-15		
VEH. DES INT.	9/16/68		
STRUCTURES		PROJ ENGR	9/4
STRUCTURES	8/28/68	REL GROUP	9/4/68
WEIGHTS			

LINE ITEM

DOCUMENTATION TYPE II

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WASHER, PLUME PROTECTION
QUAD II - DESCENT STAGE - SCIENTIFIC
EQUIP BAY - UPPER THERMAL DOOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18661
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-66

LCD3075(CCA 586) LCD3043

CDR 081968

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18661-11	E	FASTENER DISC	SEE NOTE 1				NONE	NOTE2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18661

SCALE NONE

SHEET 2.00

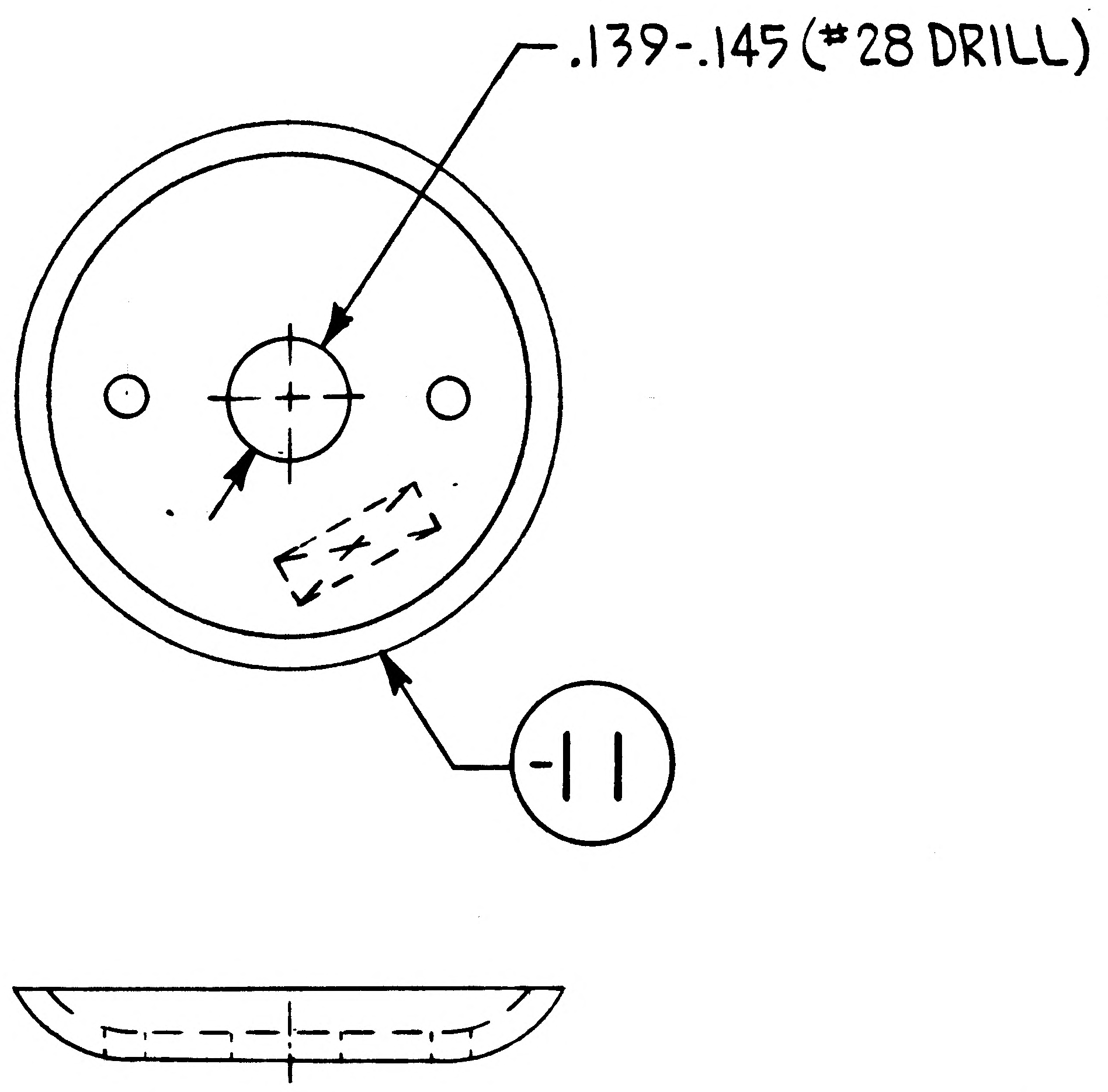
ENG 77.2 7-65

01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



NOTES:

1. LDW280-18661-11 TO BE MADE BY REWORKING GF13B-11.
2. FINISH ALL SURFACES PER LPC 280-5.

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18661

SCALE 4X

SHEET 3.00

ENG 73.1 6-64

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW 280-18661	EO NO.	A1
CONTROL INFO NO.	LDW280B6107		

FOR -11 REVISE NEXT ASSY TO LDW280-56648
(WAS) LDW 280-54648

EFF. LM-6(36) THRU LM-15(45)

SWIP

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3179 PKG 9 CCA 1278

(5)

REASON FOR EO
REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATE

DESCRIPTION OF EO
REVISED N/A OF -11 TO LDW280-56648 (WAS) LDW280-54648 EFF LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: C JC 11/11/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/8/68	11/21/68		11/8/68	11/8/68		11/8/68	11/11/68

PRIORITY: C

DRAWING TITLE: WASHER, PLUME PROTECTION QUAD II - DESCENT STAGE - SCIENTIFIC EQUIPT BAY - UPPER THERMAL DOOR

DRAWING NO.: LDW280-18661

EO NO.: A1

CDR 11/15/68

ISSUED BY GEORGOPOULOS / THORJUSEN EXT 86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1287
CONTROL INFO NO. LDW280B7091

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.
EFF LM-8(38) THRU LM-15 (45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHANGE LETTER
LDW280-18110	-11 & -15	LDW280-56665	LDW280-58665	A9
-18459	-11,-12,-13,-15,-16,-17 & -19	-56665	-58665	A3
-18486	-11,-12,-19,-21,-23 & -25	-56665	-58665	B6
-18488	-11,-12,-15,-17,-25,-27,-28,-31,-32 & -33	-56665	-58665	A7
-18661	-11	-56648	-58648	A2
-54596	-1	-56599	-58599	A8
-54602	-1-1	-56648	-58648	B6
-54674	-1 & -3	-56665	-58665	A5
-54739	-1-1 & -3-1	-56665	-58665	A9
-54742	-41-1 & -51	-56665	-58665	B3
-56601	-1	-56599	-58599	A2
-56767	-1,-3 & -5	-56648	-58648	A2
LDW280-56804	-1	LDW280-56815	LDW280-58815	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ELP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H-FILM TO 1/4 MIL H-FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: Ⓡ JK 2/19/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CNTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	2/13/69	2/17/69		2/12/69	2/12/69		2/17/69	2-19-69
	V.D.I.	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 1287

CDR030369
ISSUED BY W. KAY x87222 / D SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01 5 NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18650	A2	SEE DWG
-18656	A3	
-18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
	-	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: (E) SmB 5/1/69; JK 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	EDIT
APPROVED BY					W			
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1428

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18662

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	1 EA
↕	↕	THRU	
LM		LM-6(36)	1 EA
LFM 200	LDW280-66663	LM-5(35)	1 EA
LDW280-18662-13-15 & -16			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
↕	LDW280-66510	LM-15(45)	2
	↕	THRU	
LM		LM-6(36)	2
LFM 200	LDW280-66510	LM-5(35)	2
LDW280-18662-21			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
↕	LDW280-66510	LM-15(45)	4
	↕	THRU	
LM		LM-6(36)	4
LFM 200	LDW280-66510	LM-5(35)	4
LDW 280-18662-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15(45)	2
↕	↕	THRU	
LM		LM-6(36)	2
LFM 200	LDW280-66663	LM-5(35)	2
LDW 280-18662-12			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	2
↕	↕	THRU	
LM		LM-6(36)	2
LFM 200	LDW280-66510	LM-5(35)	2
PART NO. LDW 280-18662-19			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
↕	LDW280-66663	LM-15(45)	1
	↕	THRU	
LM		LM-6(36)	1
LFM 200	LDW280-66663	LM-5(35)	1
PART NO. LDW 280-18662-14			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11267	DVT(70)	1
↕	LDW280-66663	LM-15(45)	2
	↕	THRU	
LM		LM-6(36)	2
LFM 200	LDW280-66663	LM-5(35)	2
PART NO. LDW280-18662-11			

WORK PACKAGE FUNCTION #110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO	
		PRIM NO.	
LAST DASH NO. USED	-21	207	MP-16

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965 CCA 1235	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 8-22-68	RELIABILITY	
LAYOUT BY	L. TAVIANINI 4mm	MATERIALS	
CHECKED BY	9-9-68	THERMO	T Nelson 9-5-68
GR LEADER	Thorjusen 8-25-68		
VEH DES INT	8/28		
STRUCTURES	NM 9-11-68	PROJ ENGR	9/16/68
STRUCTURES	NJH 9/16/68	REL GROUP	9/17/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE LOWER THERMAL SHIELD
SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18662
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 092068

015

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18662-21	E	CLIP	TITANIUM	MIL-T-9046	6AL-4V ANNEALED	.040 x 3/4 x 2 3/8	NONE	NONE	
								-19 ↑	↑	↑	↑	TYPE III COMP C	↑	.040 x 3/4 x 2 3/8	↑	↑	
								-17				↑		.040 x 3/4 x 2 3/8			
								-16						.040 x 3 x 4			
								-15						.040 x 3 x 4			
								-14						.050 x 3 x 4			
								-13				↓		.050 x 3 x 4			
								-12 ↓	↓	↓	↓	MIL-T-9046	↓	.063 x 3 x 4	↓	↓	
								LDW280-18662-11	E	CLIP	TITANIUM	TYPE III COMP C	6AL-4V ANNEALED	.063 x 3 x 4	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18662

SCALE NONE

SHEET 2.00

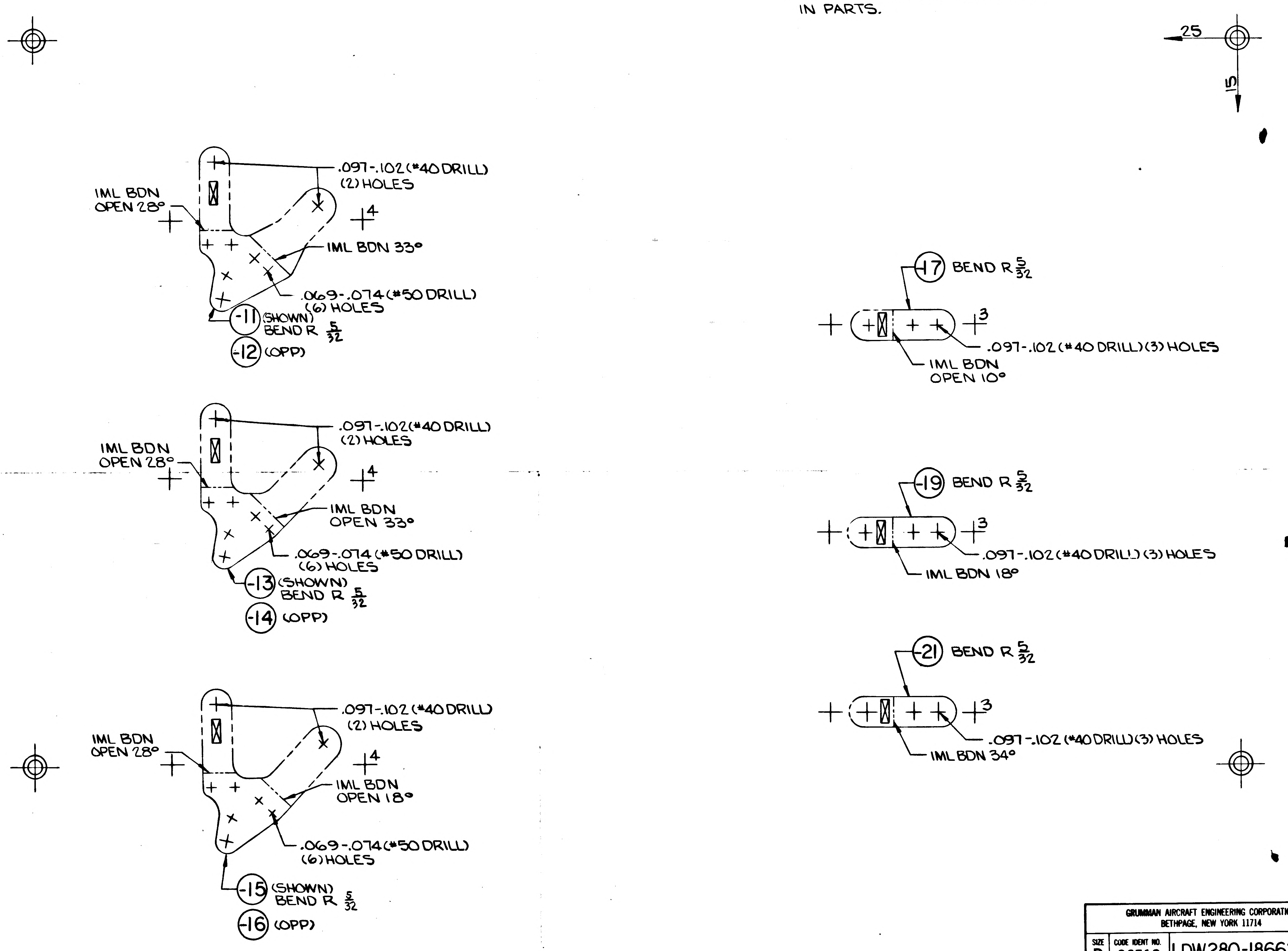
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~[illegible]~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± $\frac{1}{32}$	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.


25
15
.097-.102 (#40 DRILL) (2) HOLES
IML BDN OPEN 28°
4
IML BDN 33°
.069-.074 (#50 DRILL) (6) HOLES
-11 (SHOWN) BEND R 5/32
-12 (OPP)
.097-.102 (#40 DRILL) (2) HOLES
IML BDN OPEN 28°
4
IML BDN OPEN 33°
.069-.074 (#50 DRILL) (6) HOLES
-13 (SHOWN) BEND R 5/32
-14 (OPP)
.097-.102 (#40 DRILL) (2) HOLES
IML BDN OPEN 28°
4
IML BDN OPEN 18°
.069-.074 (#50 DRILL) (6) HOLES
-15 (SHOWN) BEND R 5/32
-16 (OPP)
-17 BEND R 5/32
3
.097-.102 (#40 DRILL) (3) HOLES
IML BDN OPEN 10°
-19 BEND R 5/32
3
.097-.102 (#40 DRILL) (3) HOLES
IML BDN 18°
-21 BEND R 5/32
3
.097-.102 (#40 DRILL) (3) HOLES
IML BDN 34°

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18662

SCALE FULL SHEET 3.00

FOR PHOTO 1 REPRODUCTI

ENG 73.3 REV. 5-67

01 NAS -1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1212
CONTROL INFO NO. LDW 280B6005

	CHG LTR	DWG NO. *	RESTRICT FOR USE ON	WAS USED ON
✓	A2	LDW280-18601 -19	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
✓	A1	LDW280-18638 -1,-2,-3,-5,-6,-7,-9,-11 & -12	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70), LM-5(35) LFM 200
✓	A1	LDW280-18656-1	LM-6(36) THRU LM-15(45) LM-5(35) LFM 200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
✓	A1	LDW280-18662 -17 & -21	LM-6(36) THRU LM-15(45) LM-5(45) LFM200	LM-6(36) THRU LM-15(45), DVT-(70) LM-5(35) LFM 200
	A2	LDW280-66655 -1	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35)	LM-6(36) THRU LM-15(45) LFM 200 LM-5(35), DVT-70

* FOR TITLE SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2-165 PKG #2 CCA# 1235 (5)

REASON FOR EO: BASE HEAT SHIELD QUALIFICATION TEST

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING DVT-(70)

GAEC EO RELEASE: 11/11/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT-(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VD1	SUPPORT	~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY			ALE	RST	wju			
DATE	11/7/68		11-7-68	11-7-68	11/7/68		11/7/68	11/11/68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1212

CDR 11/13/68
ISSUED BY D. SHAPIRO/P. THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280		EO NO. 1428
CONTROL INFO NO. LDW280B 7443		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18650	A2	SEE DWG
✓ -18656	A3	
✓ -18657	A1	
✓ -18661	A3	
✓ -18662	A2	
-18664	A3	
	-	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: (E) SMB 5-1-69; JVC 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				PSF	WJL			JM
DATE	4/29/69			4-2-69	4/8/69		4/9/69	5/1/69

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SEE DWG	LEO 280,	1428

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		B2
-18676-19	-66510	-60511		A3
-18677-11,-13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B3
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B5
				B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PK692 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * , N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT REQD SCRAP

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	-	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69
	VDI	~~SUPPORT~~ THERMO						

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1735

CDR110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

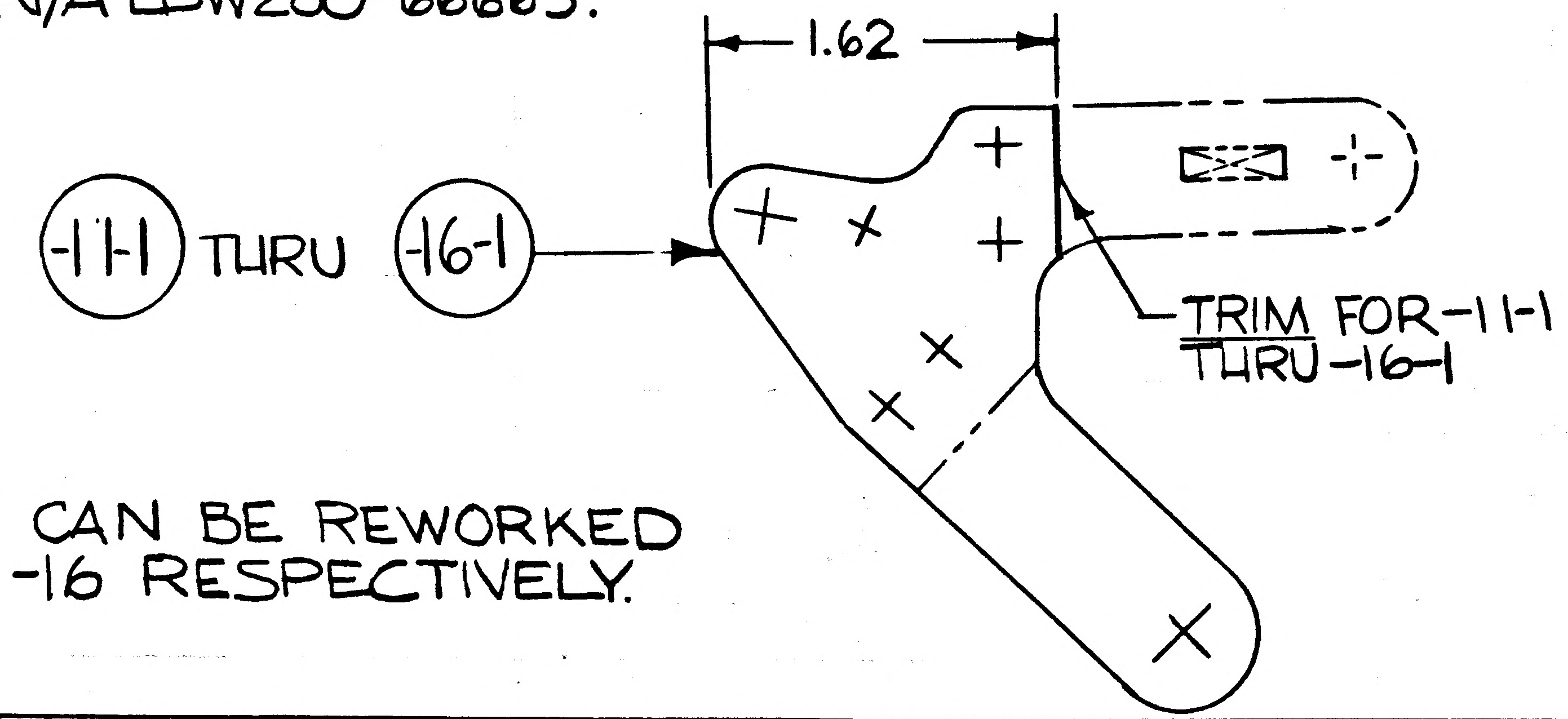
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18662		EO NO. A4
CONTROL INFO NO. LDW280 B 9808		

RESTRICT-11,-14 TO LM-5(35) THRU LM9(39) & DVT(70) EFF. WAS LM-5(35) THRU LM-14(44) & DVT(70) RESTRICT-12,-13,-15,-16,-17-19 &-21 TO LM5(35) THRU LM9(39) EFF. WAS LM5(35) THRU LM14(44) ADD -11-1, -12-1 REQMT 2EA/MOD. & -13-1,-14-1,-15-1 &-16-1 1EA/MOD EFF. LM10(40) THRU LM14(44) N/A LDW280-66663.



-11-1 THRU-16-1 CAN BE REWORKED FROM -11THRU -16 RESPECTIVELY.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 92	(5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE THE EXTENDED TANKS

DESCRIPTION OF EO: RESTRICTED-11,-14 TO LM-5(35) THRU LM9(39) & DVT(70) BY REMOVING LM10(40) THRU LM 14(44) AND -12,-13,-15,-16,-17,-19,&-21 TO LM5(35) THRU LM9(39) BY REMOVING LM10(40) THRU LM14(44). ADDED-11-1,-12-1,-13-1,-14-1,-15-1, &-16-1

GAEC EO RELEASE: 2-17-70 2/18/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	
		LM14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY					NM			
DATE	2-9-70			2/9/70	2/11/70		2/16/70	2/18/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP -D/S LOWER THERMAL SHIELD SUPPORT	LDW280-18662	A4

CDR 2/20/70

ISSUED BY TONY FURIO/G. HANSMANN X86048 / 87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18664

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54796	DVT (70)	2
LM	↕	TM-5/R(65	2
LM		LM-15(45)	2
		THRU	
LM	LDW280-54796	LM-5(35)	2
PART NO. LDW 280-18664-11		GAEC SCH NO.	

WORK PKG FUNCTION NO:110 (B)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00			2.00		3.00			
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-11	PRIM NO.	JK(001)	
		207	MP-16- 10/16/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3521 PKG 1 PG 1	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	W. DIONISIO 10/16/68	RELIABILITY	
LAYOUT BY	G HANSMANN		
CHECKED BY	H. Bernstein 10/15/68		
GROUP LEADER	[illegible] 10/16/68		
VEHICLE DESIGN	[illegible] 10/16/68		
STRUCTURES		PROJ ENGR	[illegible] 10/16/68
STRUCTURES	W/H 10/16/68	REL GROUP	[illegible] 10-16-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE - QUAD II ESCAPEMENT MECH - LANYARD RELEASE PIN

SIZE	CODE IDENT NO.	
B	26512	LDW280-18664
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-21-68

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18664-11	E	PLATE	TITAMIUM SH	MIL-T-9046 TYPE III COMP C, COND ST	6AL-4V	.040 X 3/4 X 1 1/2	NONE	SEE NOTE 1	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18664

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

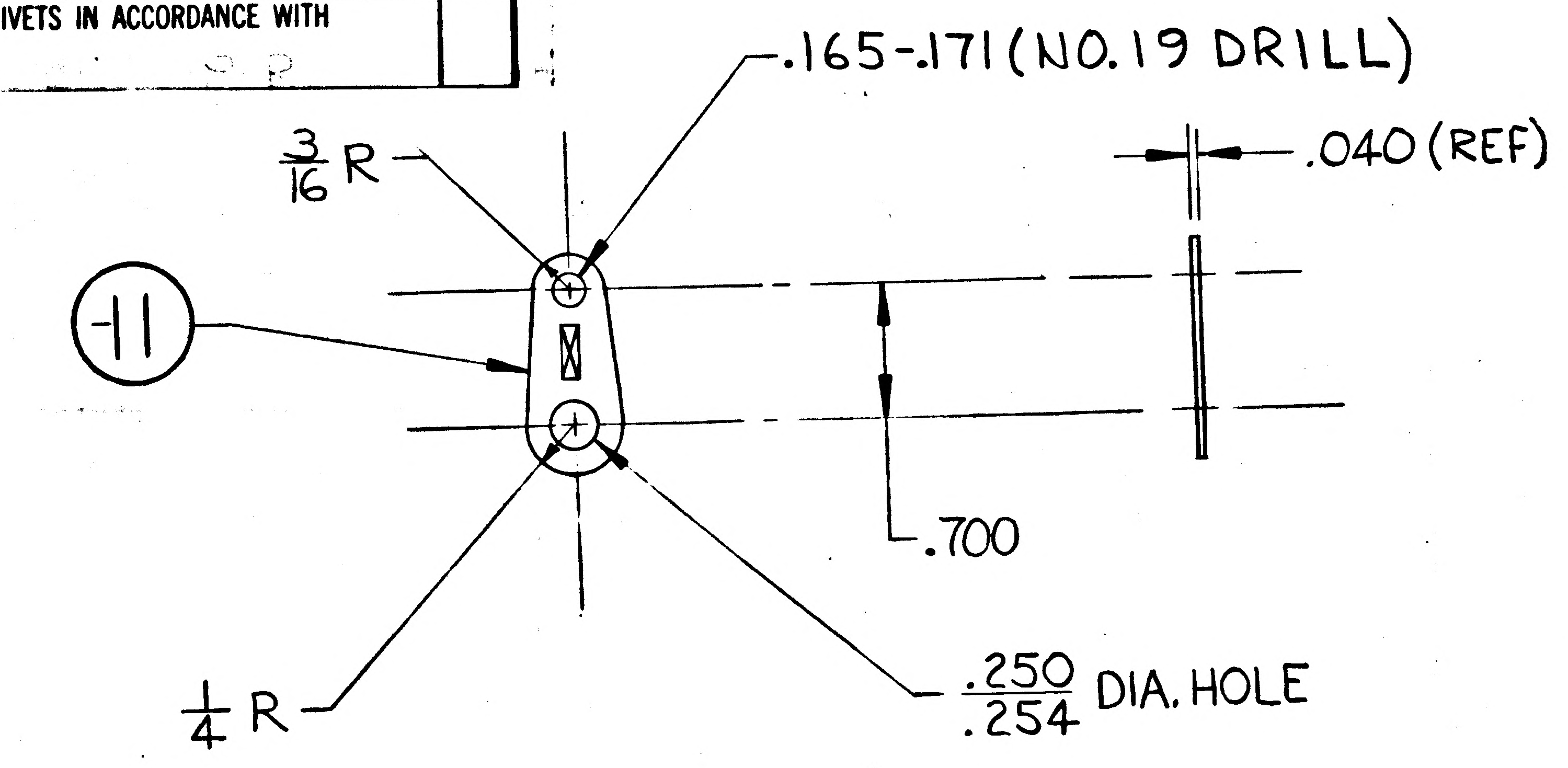
NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. FINISH: DRY FILM LUBE PER LSP14-10300 TYPE II.
2. NO TOOLING HOLES PERMITTED IN PART.
3. CREW HAZARD PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL SHARP EDGES & BURRS.



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18664	
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18664	EO NO.	A1
CONTROL INFO NO.	LDW280B5927		

IN M/B FOR -11 N/A LDW280-55796 REPLACES LDW280-54796.

EFF & QUANTITY/MOD REMAIN THE SAME.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3521 ECP C-159 PKG. 1 PAGE 6 (5)

REASON FOR EO: (REF RFA 18) – REDESIGN – REQ'D FOR RESTOWING BOOMS.

DESCRIPTION OF EO: IN M/B FOR -11 N/A LDW 280-55796 WAS LDW 280-54796

GAEC EO RELEASE: VK 10/25/68

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT	REQD	APPROVED BY								
				DATE	10/16/68			10/19/68	10/21/68		10/21/68	10-22-68
REVISE DWG	RECORD EO	REWORK	SCRAP		V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	
		LM-15(45), DVT(70)	
		TM-5/R(65)	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE ~ D/S ~ QUAD II ESCAPEMENT MECH. LANYARD RELEASE PIN	LDW280-18664	A1

10/25/68
ISSUED BY W. KAY x87222 / SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1192
CONTROL INFO NO. LDW28C35978

FOR THE FOLLOWING DRAWINGS IN M/B CHANGE
N/A TO LDW280-54626 (WAS) LDW280-55796
EFF & QUANTITY REMAINS UNCHANGED

DRAWING NO.*	TITLE	CHG NO.
LDW280-18664-11	SEE DWG	A2 ✓
LDW280M18067-11	SEE DWG	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3521 PKG 1 PAGE 2 (5)

REASON FOR EO: REDESIGN OF BOOM RETRACTION LANYARD STOWAGE (RFA #18)

DESCRIPTION OF EO: FOR (*) NEXT ASSEMBLY LDW280-54626 WAS LDW 280-55796

GAEC EO RELEASE: (R) C JK 10/31/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) THRU	
		LM-15(45), DVT	(70),
		TM-5/R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COMP~~
APPROVED BY	JAS			GR.	N/A		JaP	Batt
DATE	10/31/68			10/28/68			10/31/68	11-1-68

PRIORITY C

DRAWING TITLE: SEE DRAWING

DRAWING NO. LEO 280

EO NO. 1192

10/31/68
ISSUED BY W. KAY x 87222 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-66

DWG. NO. LEO 280 EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18650	A2	SEE DWG
✓ -18656	A3	
✓ -18657	A1	
✓ -18661	A3	
✓ -18662	A2	
✓ -18664	A3	
-[illegible]	-	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM —*

GAEC EO RELEASE: 5/7/69, 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/1/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	EDIT	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280,
EO NO.: 1428

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1563
CONTROL INFO NO. LDW280B 8123

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18631	SEE DWG	A2
✓ 639		A2
✓ 650		A3
✓ 657		A2
✓ 664		A4
LDW280-18666	SEE DWG	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 40 & 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69 8/13/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY					N			
DATE	7-29-69			7/29/69	8-2-69		8/ 8-15-69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~ REL

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1563

8-29-67
ISSUED BY G. HANSMANN X87222 (PH) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18665

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23519	TM5/R (65)	1
↑	↑	QUAL TEST (72)	1
		LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
↓	↓		
LM	LDW280-23519	LM-5 (35)	1

PART NO. LDW280-18665-1

WORK PKG FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO
LAST DASH NO. USED	-1	PRIM NO. 207 · ✓K(C01) ME-16 10/24/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ~ ~
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3521 (ECP#C 159)

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 10-10-68	RELIABILITY	
LAYOUT BY	D.RAGAS D.O. 10-23-68	MATLS	10/23/68
CHECKED BY	D. Fass 10-22-68	THERM.	M. Rudolf 10/23/68
GR LEADER	Thomsen 10-23-68		
VEH DES INT	10/23/68		
STRUCTURES	WTB 10/23/68	PROJ ENGR	J. Lusater 10/23/68
STRUCTURES	10/23/68	REL GROUP	L. Marsh 10-23-68
WEIGHTS			

(E) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LANYARD ASSY
DESCENT STAGE MANUAL DEPLOYMENT OF MODULE EQUIPMENT STOWAGE ASSY

SIZE B · CODE IDENT NO. 26512 · LDW280-18665
SCALE NONE · SHEET 1.00 OF 3

CDR 10/25/68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		GT534B-2	E	THREAD	GRUMMAN STD	SEE NOTE 2					
1		GT535L-LCS-0050	↑	TAPE (PILE)	GRUMMAN STD						
1		GW13A-08-1476	↓	WEBBING	GRUMMAN STD						
		LDW280-18665-1	E	LAYNARD ASSY	BETA WEBBING	SEE NOTES			NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18665

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01 [illegible] NAS 9-1100

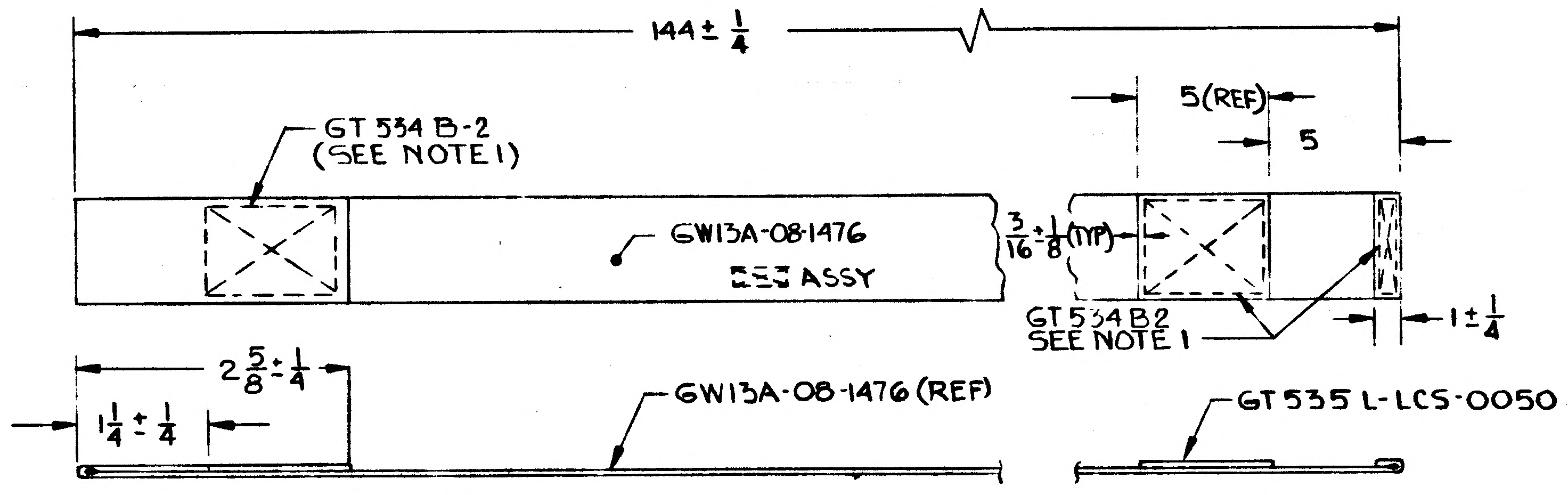
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE ~~BOTH SIDES IF~~ NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1 ALL STITCHING TO BE IN ACCORDANCE WITH FED STD.751, TYPE 301, 6-11 STITCHES PER INCH. ALL STITCHING TO BE BACK STITCHED A MIN 3/8-1/2 INCH

2 GT534B-3 MAY BE USED AS AN ALTERNATE FOR GT534B2



144 ± 1/4
GT 534 B-2 (SEE NOTE 1)
GW13A-08-1476 ▨ ASSY
3/16 ± 1/8 (TYP)
5 (REF)
5
GT534B2 SEE NOTE 1
1 ± 1/4
2 5/8 ± 1/4
1 1/4 ± 1/4
GW13A-08-1476 (REF)
GT535 L-LCS-0050

LDW280-18665-1 ASSY

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18665
SCALE NONE		SHEET 3.00

LDW280-18665

01

NAS 9-1100

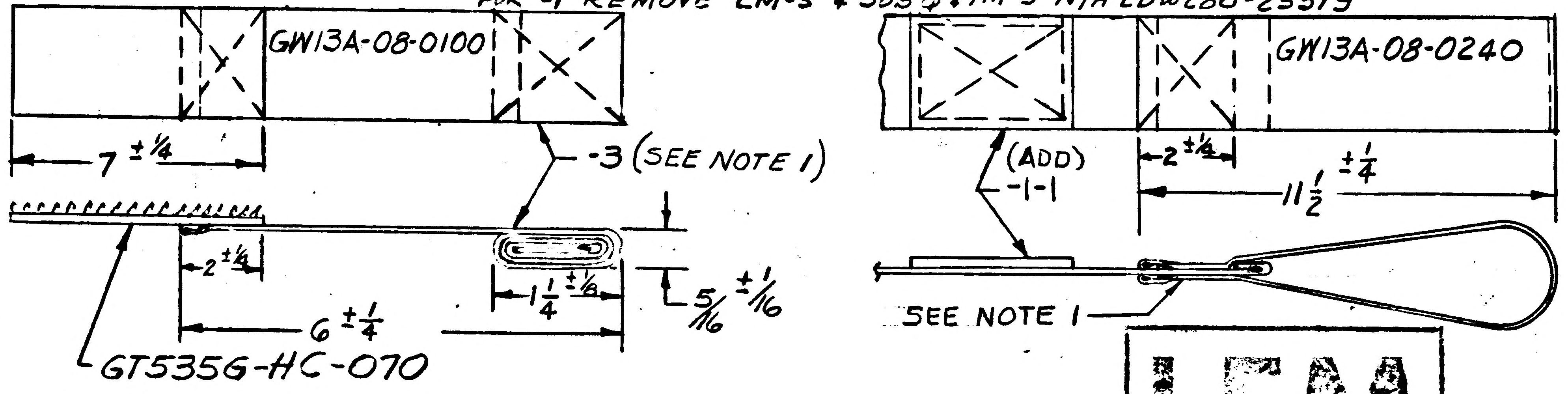
ENG- -- . REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 18665		EO NO. A1
CONTROL INFO NO. LDW280B7601		

IN F/D & B/M: ADD -1-1 ASSY IDENT TO -1 ASSY EXCEPT ADD GW13A-08-0240 AS SHOWN BELOW.
ADD -3 ASSY AS SHOWN BELOW
-3 EFF: LM-5(35) LFM406 N/A LDW280-54665, LM-6(36) { LFM 406 LM-7(37) N/A LDW280-56665 & LM-8(38) & SUBQ N/A LDW280-58665 LFM 406 TM 5(65) N/A LDW280-54665
-1-1 EFF: LM-5(35), LFM406 N/A LDW280-54561, LM-6(36) LFM 406 LM-7(37) N/A LDW280-56561 & LM-8(38) & SUB.Q N/A LDW280-58561, TM5(65) N/A LTM280-50609
FOR -1 REMOVE LM-5 & SUBQ & TM-5 N/A LDW280-23519



LFM

NOTE (DON'T INCORP)
RETAIN -1 FOR RECORD PURPOSES FOR LM5 & LM6 REWORK INFO.
* HAND STITCHING IS PERMISSABLE USING MIN OF (4) STITCHES PER INCH MIN 1/16 EDGE DISTANCES

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3917 (5)

REASON FOR EO: ADD LOOP FOR ASTRONAUT CONVENIENCE. (REF RFA #4 & 8)

DESCRIPTION OF EO: ADDED -1-1, & -3 ASSY
REMOVED -1

GAEC EO RELEASE: (E) JK 4/15/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 406	LM-5(35) LM-6(36)	TM 5 (65)
LM		LM-7(37) & SUBQ	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		MR							
DATE	4/14/69	4/14/69		4-14-69	4/14/69		4/14/69		
	VDL	~~THERMO SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LANYARD ASSY D/S MANUAL DEPLOYMENT OF MESA	LDW280-18665	A1

04-14-69
ISSUED BY R. CLARK / P. THORJUSEN 8-7222 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18665
EO NO. A2
CONTROL INFO NO. LM-5-23556

REMOVE LM-10(40) THRU LM-13(43) EFF. FROM
-1-1 & -3 IN MODEL BLOCK N/A LDW280-58561

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3994

REASON FOR EO: LANYARD NOT REQ'D. ~ MESA REDESIGNED PER LCD3994

DESCRIPTION OF EO: REMOVED LM 10(40) THRU LM-13(43) EFF. FROM -1-1 & -3

Ⓔ GAEC EO RELEASE: W.D.H 11-19-70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10 (40) THRU LM-13(43)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY					KC			
DATE	11-19-70			11/19/70	11/12/70	11-12-70	11-19-70	11-12-70
	VO1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LANYARD ASSY - D/S-MANUAL DEPLOY. MOD. EQUIP. STOWAGE ASSY.	LDW280-18665	A2

ISSUED BY LIAISON C. COSMA 86755 SECTION VD1 GROUP NO. 280 PL. 25

01

NAS 9-1100

LDW280-18666

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66538	TM-5/R(65)	4 EA
		DESIGN VERIFICATION TEST (70)	4 EA
		LM-15(45)	4EA
		LM-14(44)	4EA
		LM-13(43)	4EA
		LM-12(42)	4EA
		LM-11(41)	4EA
		LM-10(40)	4EA
		LM-9(39)	4EA
		LM-8(38)	4EA
		LM-7(37)	4EA
		LM-6(36)	4EA
LM	LDW280-66538	LM-5(35)	4EA
PART NO. LDW 280-18666-15 & -17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66538	TM-5/R(65)	2EA
		DESIGN VERIFICATION TEST (70)	2EA
		LM-15(45)	2EA
		LM-14(44)	2EA
		LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
		LM-10(40)	2EA
		LM-9(39)	2EA
		LM-8(38)	2EA
		LM-7(37)	2EA
		LM-6(36)	2EA
LM	LDW280-66538	LM-5(35)	2EA
PART NO. LDW 280-18666-11 & -13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00							
REV											
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED ~

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 N(001) ME-16 10/29/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3521; ECP C159

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W. CONROY 10-24-68
LAYOUT BY F. MARZELLA FM 10-26
CHECKED BY W. MURPHY 10-25-68
GR LEADER Thorjusen 10/28/68
VEH DES INT 10/28/68
STRUCTURES
STRUCTURES 10/28/68
WEIGHTS
RELIABILITY
PROJ ENGR 10/28
REL GROUP J. Marsh 10-29-68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - APOLLO LUNAR SCIENTIFIC EQUIPMENT PACKAGE - BOOM RETRACTION

SIZE B
CODE IDENT NO. 26512
LDW280-18666
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 103168

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18666-17	E	GUARD	AL ALLOY TUBE	MIL-T-7081	6061-T6	.250 O.D x .035 x 2 1/8	NONE	NONE	
		-15	↕	PLATE	AL ALLOY SH	QQ-A-250/11	6061-O	.050 x 3 x 5	↕	↕	
		-13	↕	PLATE	AL ALLOY SH	QQ-A-250/11	6061-O	.050 x 2 x 3	↕	↕	
		LDW280-18666-11	E	ANGLE	AL ALLOY SH	QQ-A-250/11	6061-O	.050 x 3 x 5	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18666

SCALE NONE | SHEET 2.00

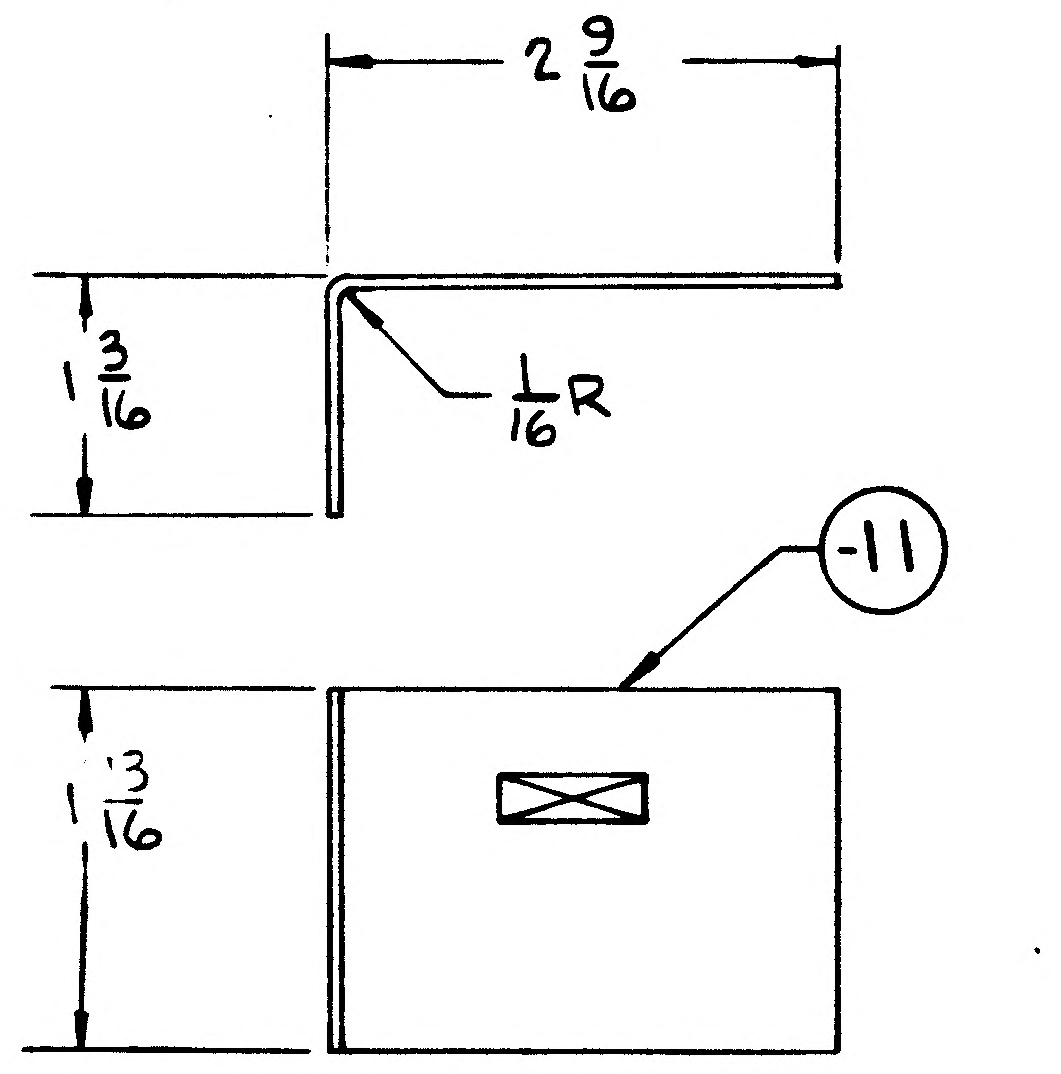
ENG 77.2 7-65

01

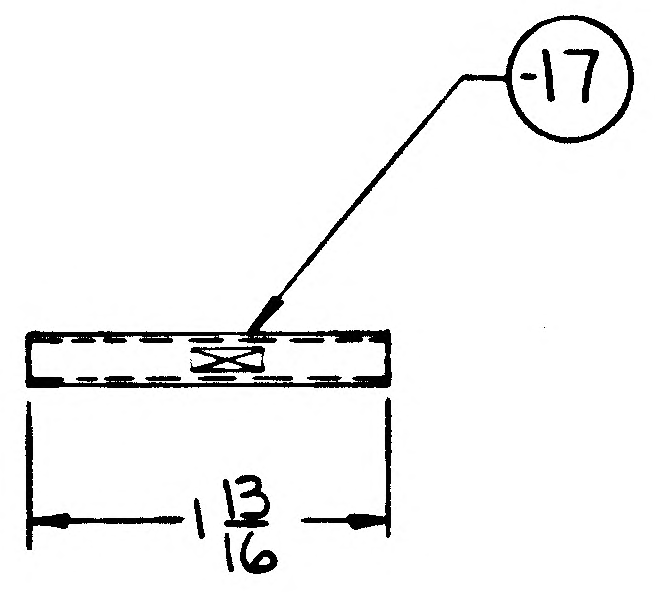
NAS 9-1100

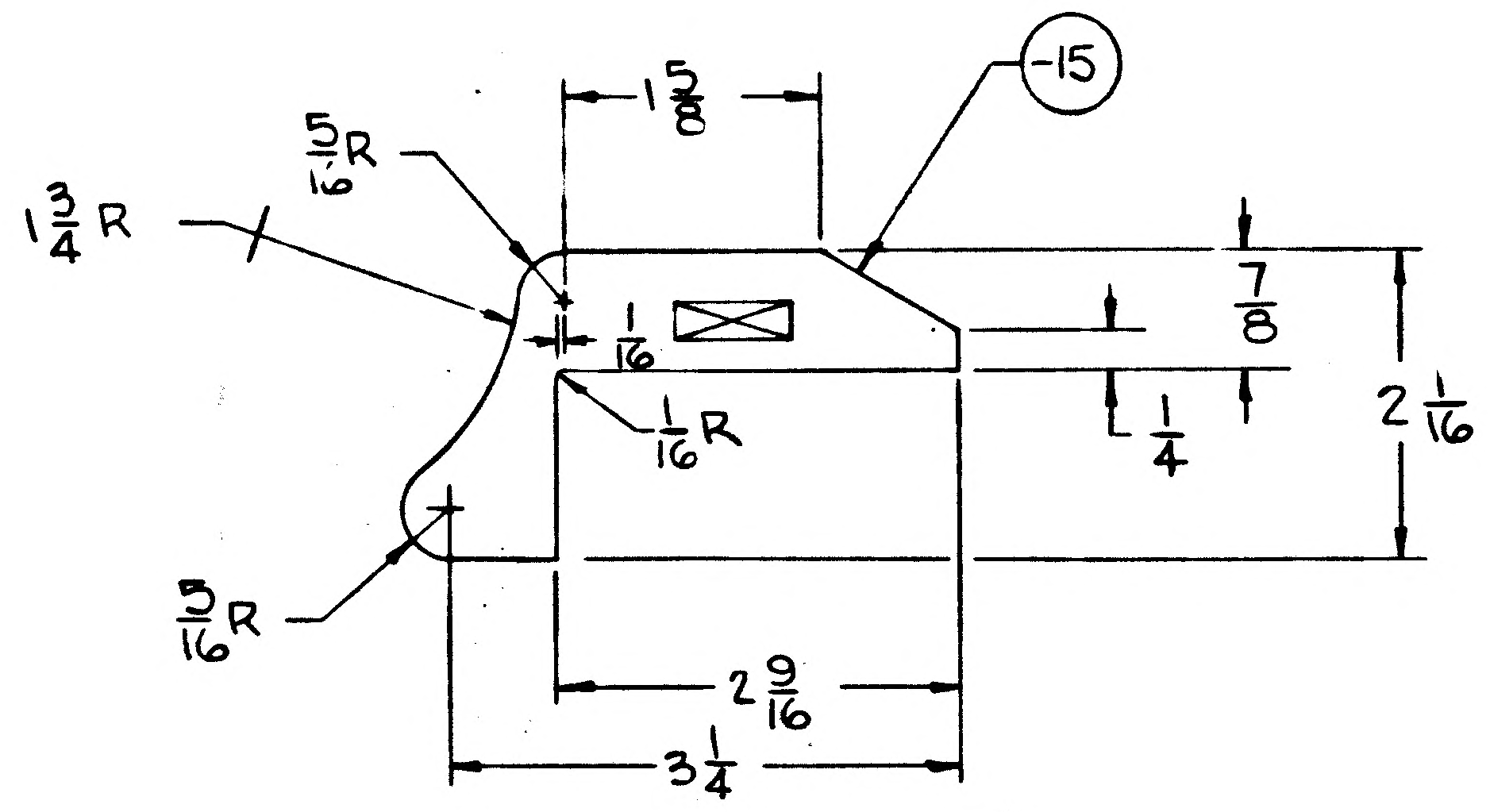
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.

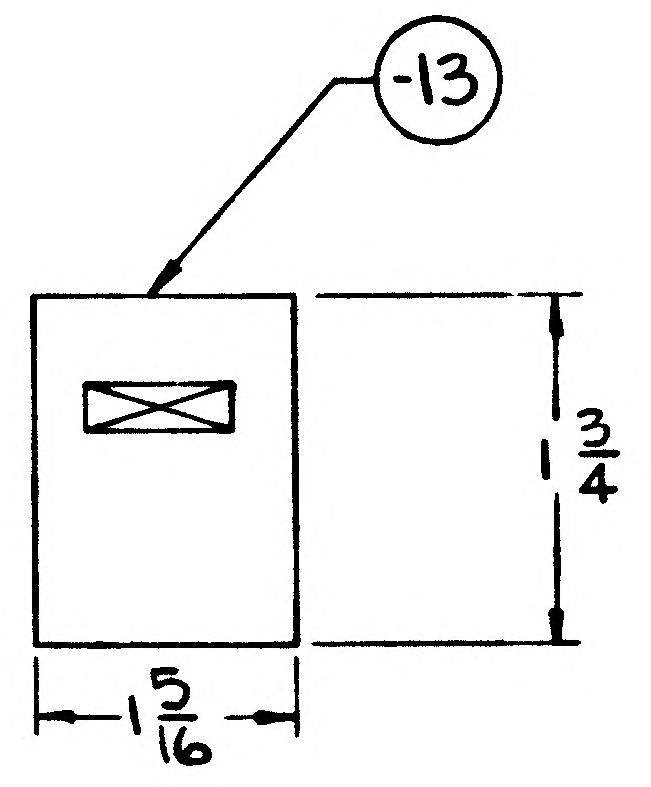


2 9/16
1 3/16
1/16 R
-11
1 3/16





1 5/8
-15
5/16 R
1 3/4 R
1/16
7/8
1/16 R
1/4
2 1/16
5/16 R
2 9/16
3 1/4



01 NAS -1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18666	
SCALE FULL		SHEET 3.00	

ENG 73.3 REV. 5-67

DWG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18650	A2	SEE DWG
-18656	A3	
-18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
[illegible]	–	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 6 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM – *

GAEC EO RELEASE: 5-1-69; 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/11/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1428

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280
EO NO. 1563
CONTROL INFO NO. LDW280B812

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18631	SEE DWG	A2
✓ 639		A2
✓ 650		A3
✓ 657		A2
✓ 664		A4
✓ LDW280-18666	SEE DWG	A2

DETAIL SPEC REQ ☐ CL I ENGRG CHG ☐ CL II ENGRG CHG ☑ LCD 3890 PKG 99 PG 40 & 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: SWK 8-13-69 ; 8/13/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	P.T				N		
DATE	7-29-69			7/29/69	8-2-69		8-15-69

~~[illegible]~~ REL

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1563

8-29-69
ISSUED BY G. HANSMANN X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1618
CONTROL INFO NO LDW280B - 8433

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
~~LDW 280-17719~~	~~SEE DRAWING~~	~~LDW280-23631~~	
~~-18350~~		~~23634~~	
-18667		-55796	A3
-66538		-55796	A4
-18666		-66538	A3
~~-17766~~		~~-53622~~	
~~-17769~~		~~-25680~~	
M17806		-54575	A5
~~-17952~~		~~-25719~~	
~~LDW280~~ M17268		-54576	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 70 PG 1, 2, + 10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-29; 8/26/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 3 DR/1	(460)

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY							
DATE	8-8-69			8/8/69	8/12/69		8/12/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LE0280
EO NO.: 1618

8-25-69
ISSUED BY A. FURIO X86096 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18667

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-55796	DVT (70)	1 EA
		TM-5/R(65)	1 EA
		LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
		LM-6(36)	1 EA
LM	LDW280-55796	LM-5(35)	1 EA
PART NO. LDW280-18667-13 THRU-21			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-55796	DVT (70)	2
		TM-5/R(65)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
LM	LDW280-55796	LM-5(35)	2
PART NO. LDW280-18667-11			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-21	207	ME-16- 10/30/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3521 ECP C159

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	G. ZARCADOOLAS	10/25/68
LAYOUT BY	F. MARZELLA	FM 10-26
CHECKED BY	W. MURPHY	10-26-68
GR LEADER	G.H. Thomsen	10/28/68
VEHDSGN INT		10/30/68
STRUCTURES		10/27
STRUCTURES	W.H.	10/29/68
WEIGHTS		
PROJ ENGR	J. Pusateri	10/30
REL GROUP	C. Marsh	10/30/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-ALSEP BOOM RETRACTION
BRACKET SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18667
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 103168

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18667-21	E	CLIP	ALALYSH	QQ-A-250/12	7075-T6	.032X3X5	NONE	88	
		-20		CLIP				.032X3X4			
		-19		CLIP				.032X3X4			
		-17		ANGLE				.032X3X4			
		-16		CHANNEL				.032X4X6			
		-15		CHANNEL				.032X4X6	NONE		
		-14		PLATE				.032X3X6	T6		
		-13		PLATE				.032X3X6	T6	88	
		LDW280-18667-11	E	PLATE	ALALYSH	QQ-A-250/12	7075-T6	.125X2X4	NONE	88 & NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18667

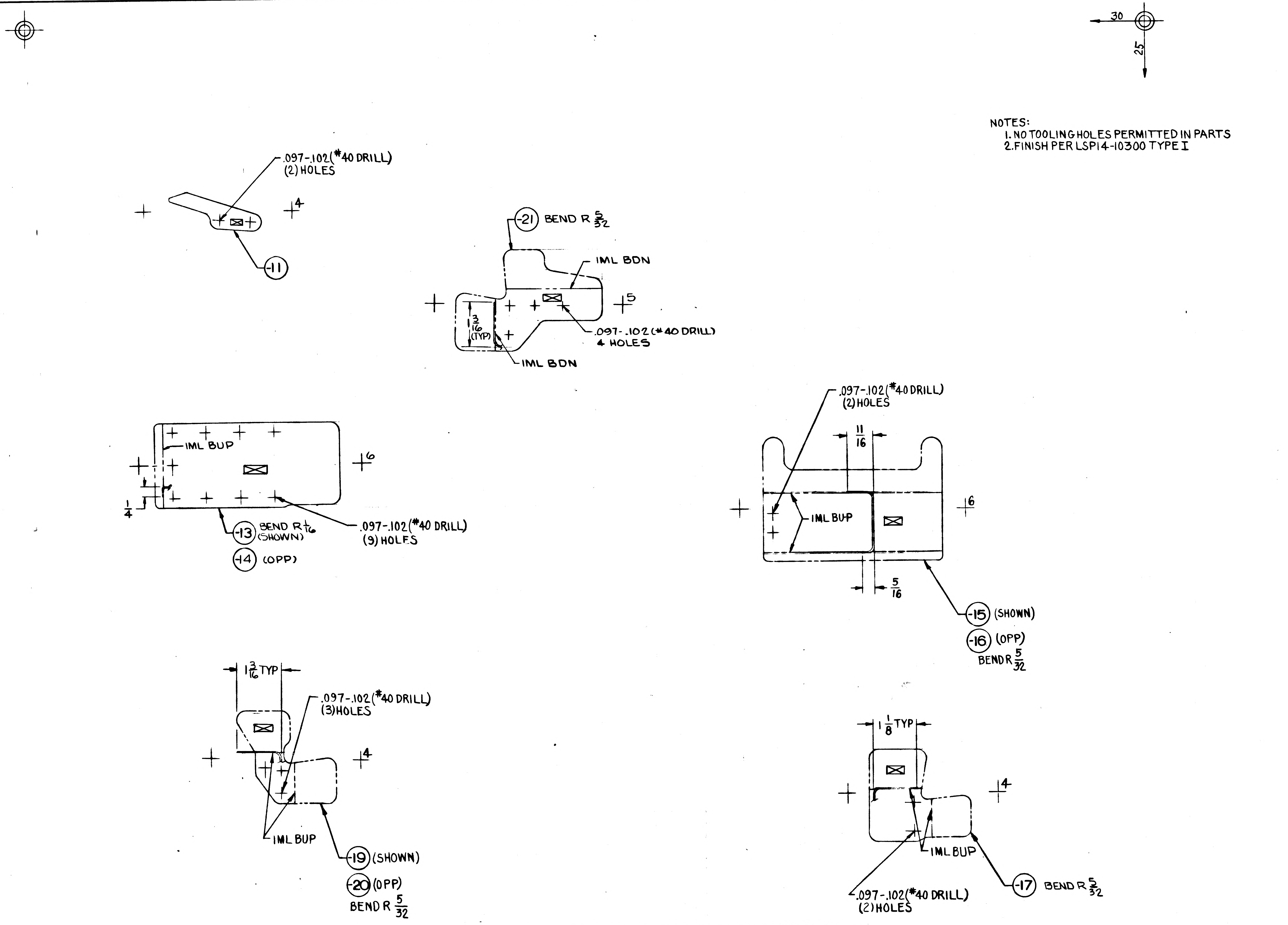
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



30
25
.097-.102(#40 DRILL)
(2) HOLES
4
-11
-21 BEND R 5/32
IML BDN
5
3/16 (TYP)
.097-.102(#40 DRILL)
4 HOLES
IML BDN
IML BUP
6
1/4
-13 BEND R 1/16 (SHOWN)
-14 (OPP)
.097-.102(#40 DRILL)
(9) HOLES
.097-.102(#40 DRILL)
(2) HOLES
11/16
IML BUP
6
5/16
-15 (SHOWN)
-16 (OPP)
BEND R 5/32
1 3/16 TYP
.097-.102(#40 DRILL)
(3)HOLES
4
IML BUP
-19 (SHOWN)
-20 (OPP)
BEND R 5/32
1 1/8 TYP
4
IML BUP
.097-.102(#40 DRILL)
(2)HOLES
-17 BEND R 5/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FINISH PER LSP14-10300 TYPE I

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM: LM	SIZE: F	CODE IDENT NO.: 26512	LDW280-18667
	SCALE: FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORᴰ

DWG. NO. LEO 280		EO NO. 1428
CONTROL INFO NO. LDW280B 7443		

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
✓ LDW280-18650	A2	SEE DWG
✓ -18656	A3	
✓ -18657	A1	
✓ -18661	A3	
✓ -18662	A2	
✓ -18664	A3	
[illegible]	-	
✓ -18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 6 CCA 1821 ⑤

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JJ			PJT	WJL		Raf	JM
DATE	4/9/69			4-2-69	4/8/69		4/9/69	5/1/69

GAEC Ⓔ EO RELEASE
SmB 5/1/69
JC 5/2/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1428

052869 ISSUED BY: MEVORAH / THORJUSEN X86046 SECTION: VEH DES INT GROUP NO. 335 PL. 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

[redacted] LEO280

EO NO. 1568

CONTROL INFO NO. LDW28^B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №	
✓LDW280-18667	SEE DWG	A2	
668		A3	
671		A4	
676		B2	
677		B2	
678		B2	
679		B2	
680		B4	
681		B3	
LDW280-18684	SEE DWG	B2	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

	APPROVED BY	DATE	
VDI	P.S.F.	7-29-69	
SUPPORT			
RELIAB. GROUP			
GROUP LEADER		7/29/69	
STRESS GROUP	M	8-2-69	
LIAISON ENGRG			
PROJ ENGRG		8/4/69	
~~GOVT~~		8/16/69	

(R) GAEC EO RELEASE

	8-13-69
JK	8/18/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1618
CONTROL INFO NO. LDW280B - 8433

FOR THE FOLLOWING DRAWINGS ADD LTA 3 DR/1 (460) REQ'MTS WITH THE SAME NEXT ASSY AND QUANTITY AS FOR LM 10 (40)

DRAWING NO. *	TITLE	NEXT ASSY	CHG NO.
~~LDW 280-17719~~	~~SEE DRAWING~~	~~LDW280-23631~~	
~~-18350~~		~~-23634~~	
-18667 ✓		-55796	A3
-66538		-55796	A4
-18666		-66538	A3
~~-17766~~		~~-53622~~	
~~-17769~~		~~-25680~~	
M17806		-54575	A5
~~-17952~~		~~-25719~~	
~~LDW280~~ M17268		-54576	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 70 PG 1, 2, + 10 (5)

REASON FOR EO: ADDITION OF EXTENDED D/S PROPELLENT TANKS

DESCRIPTION OF EO: ON-* ADDED LTA 3 DR/1 (460) REQ'MTS

GAEC EO RELEASE: 8-29 8/26/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA 3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT REQ'D		APPROVED BY	PBT				W/H			
				DATE	8-8-69			8/4/69	8/12/69		8/12/69	8/13/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LE0280	1618

8-25-69
ISSUED BY A. FURIO X86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18668

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	TM-5/R(65)	2
		D.V.T (70)	2
		LM-15(45)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LM-9(39)	2
		LM-8(38)	2
		LM-7(37)	2
		LM-6(36)	2
LM	LDW280-54626	LM-5(35)	2

PART NO.	GAEC SCH NO.	
LDW280-18668-1		

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00		
REV							
SHEET							
REV							
SHEET							
REV							

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. JK(001)

207 ME-16 10/3/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3521

ECP C159

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	MASONE 10-23-68	RELIABILITY	
LAYOUT BY	GUS HANSMANN	MATL	O. Lorge 10/30/68
CHECKED BY	W. MURPHY 10-26-68		
GR LEADER	G.H. Thoyneser 10-30-68		
VEH DES INT	J. Stalenak 10/28/68		
STRUCT	W.K. 10/30/68	PROJ ENGR	J. Cusateri 10/30/68
STRUCT	NM 10/30/68	REL GROUP	J. Marsh 10/30/68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LANYARD ASSY
DESCENT STAGE - QUAD II
BOOM REACTION

SIZE B

CODE IDENT NO. 26512

LDW280-18668

SCALE NONE

SHEET 1.00 OF 3

CDR 10/31/68

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY															
					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							GT534B-3	E	THREAD	GRUMMAN STD	SEE NOTE 3					
					A/R		GT534B-2	E	THREAD	GRUMMAN STD						
					1		LDW280M17880-11	E	BUSHING	SEE DWG						
					1		LDW280-18668-11	E	WEBBING	SEE NOTE 4				NONE	NOTE 1	
							LDW280-18668-1	E	LANYARD ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18668
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

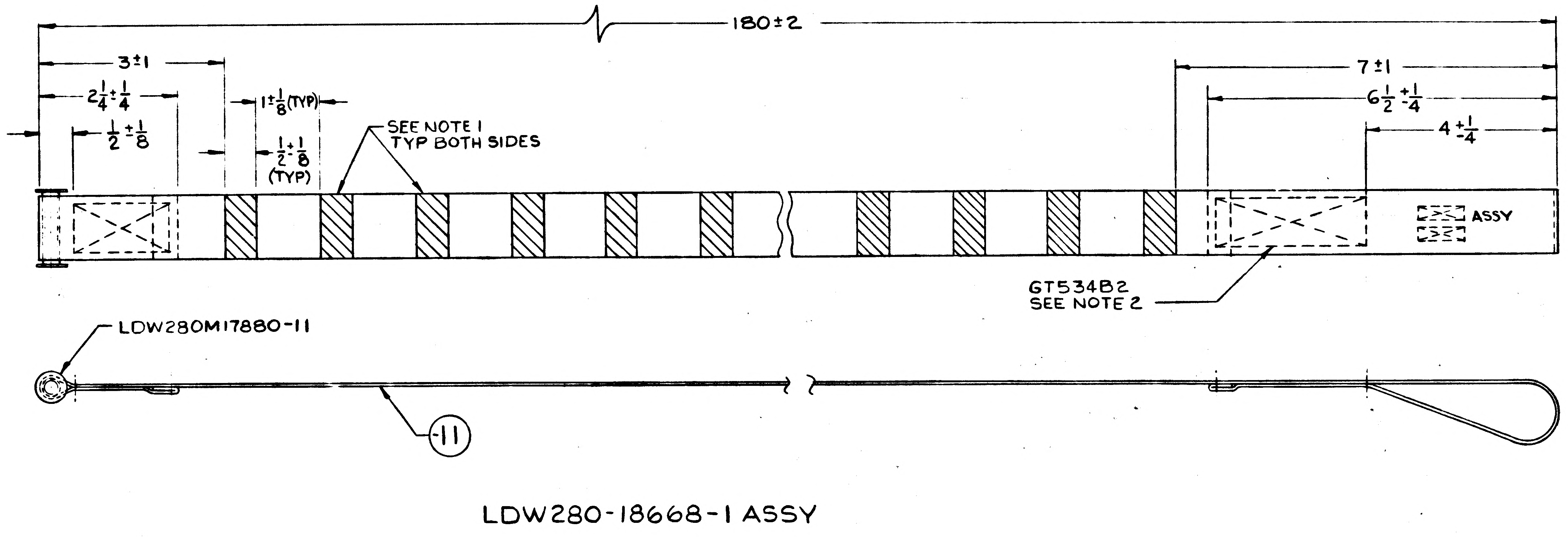
NAS 9-1100

LDW280-18668

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. SPRAY OR BRUSH COAT STRIPES WITH #403C10 (LSM14-4405) PER LSP14-4503 AND CURE FOR 5 HOURS MINIMUM AT 150-160°F. AFTER CURE, APPLY ONE COAT OF CNR PER LPC 330-001. STRIPING & CNR COATING TO BE INSPECTED VISUALLY. NO PAINT ADHESION TESTS ARE REQD.
2. ALL STITCHING TO BE IN ACCORDANCE WITH FED STD. 751, TYPE 301, 6-11 STITCHES PER INCH. ALL STITCHING TO BE BACK STITCHED A MIN. 3/8 TO 1/2 INCH
3. GT534B-3 MAY BE USED AS ALTERNATE FOR GT534B-2
4. MAKE -11 FROM GW13A-08-1936


180±2
3±1
$2\frac{1}{4}\pm\frac{1}{4}$
$\frac{1}{2}\pm\frac{1}{8}$
$1\pm\frac{1}{8}$(TYP)
$\frac{1}{2}\pm\frac{1}{8}$ (TYP)
SEE NOTE 1
TYP BOTH SIDES
7±1
$6\frac{1}{2}{}^{+1}_{-4}$
$4{}^{+1}_{-4}$
ASSY
GT534B2
SEE NOTE 2
LDW280M17880-11
-11

LDW280-18668-1 ASSY

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18668
SCALE FULL		SHEET 3.00

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1244
CONTROL INFO NO. LDW280B6608

FOR The following drawings * ADD NOTE **

NOTE ** " FOR * THE EMITTANCE REQUIREMENTS OF LSP14-4503 PARA 4.2 ARE TO BE OMITTED"

DRAWING NO. *	TITLE	CHANGE NO.
✓ LDW280-54633-11-1	SEE DWG	B7
✓ LDW280-66502-17	SEE DWG	A5
✓ LDW280-18668-1	SEE DWG	

** USE NEXT AVAIL NOTE #

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3521 PKG 1	ECP C159	(5)

REASON FOR EO: OUTGASSING & EMITTANCE REQMTS NOT APPLICABLE TO LANYARDS STORED IN D/S

DESCRIPTION OF EO: ADDED NOTE # **

GAEC EO RELEASE: VC 12/21/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) thru	
		LM-15(45) DVT(70)	
		TM-5(R)(65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY							Bauman	
DATE	12/20/68	12/20/68		12/19/68	12/20/68		12/20/68	12-20-68
	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG	LEO 280	1244

12/20/68
ISSUED BY D. SHAPIRO/P. Thorjussen x86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1244
CONTROL INFO NO. LDW280B6608

FOR The following drawings * ADD NOTE **

NOTE ** "FOR * THE EMITTANCE REQUIREMENTS OF LSP14-4503 PARA 4.2 ARE TO BE OMITTED"

DRAWING NO. *	TITLE	CHANGE NO.
✓ LDW280-64633-11-1	SEE DWG	B7
✓ LDW280-66502-17	SEE DWG	A5
✓ LDW280-18668 -1	SEE DWG	A1

ADDED CHG NO. A1 FOR LDW280-18668 OMITTED ON INITIAL RELEASE C.Booth 1-8-69

** USE NEXT AVAIL NOTE #

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3521 PKG1 ECP C159 (5)

REASON FOR EO: OUTGASSING & EMITTANCE REQMTS NOT APPLICABLE TO LANYARDS STORED IN D/S

DESCRIPTION OF EO: ADDED NOTE * **

GAEC EO RELEASE: VC 1/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35) thru	
		LM-15(45) DVT(70)	
		TM-5R(65)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								Bauman
DATE	12/20/68	12/20/68		12/19/68	12/20/68		12/20/68	12-20-68

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1244

12/20/68
ISSUED BY D. SHAPIRO/P. Thorjussen X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-66

DWG. NO. LEO 280
EO NO. 1428
CONTROL INFO NO. LDW280B 7443

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS: *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18650	A2	SEE DWG
-18656	A3	
-18657	A1	
-18661	A3	
-18662	A2	
-18664	A3	
[illegible]	-	
-18666	A1	
-18667	A1	
LDW280-18668	A2	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG. 6 CC 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD.

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: 5-1-69; 5/2/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/1/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1428

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL. 25

015
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[illegible] LEO 280 | EO NO. 1568
CONTROL INFO NO. LDW 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
668		A3
671		A4
676		B2
677		B2
678		B2
679		B2
680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 9 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; JK 8/18/9

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PBT				M			
DATE	7-29-69			7/29/69	8-2-69		8/2/69	8/16/69

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SEE DRAWINGS	LEO 280	1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18671

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54626	DVT (70)	2
		TM5/R (65)	
		LM-15 (45)	
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
LM	LDW280-54626	LM5 (35)	2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18671-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION III (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00					
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. 207
JK(001) ME-16 11/4/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/64 ±.010 ±2°0'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3521 PKG #1

ECP-C159

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J. LANG
LAYOUT BY J. LANG
CHECKED BY D. FASS 11-4-68
GR LEADER 10/31/68
VEH DES INT 10/31/68
STRUCTURES
STRUCTURES N.M 11-1-68
MATLS 11/1/68
PROJ ENGR 11/4/68
REL GROUP 11/4/68

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPRING
DESCENT STAGE-ALSEP BOOM RETR
LANYARD SPOOL BRAKE

SIZE B
CODE IDENT NO. 26512
LDW280-18671

SCALE NONE
SHEET 1.00 OF 2

ENG 77.1 12-65

CDR 11/1/68

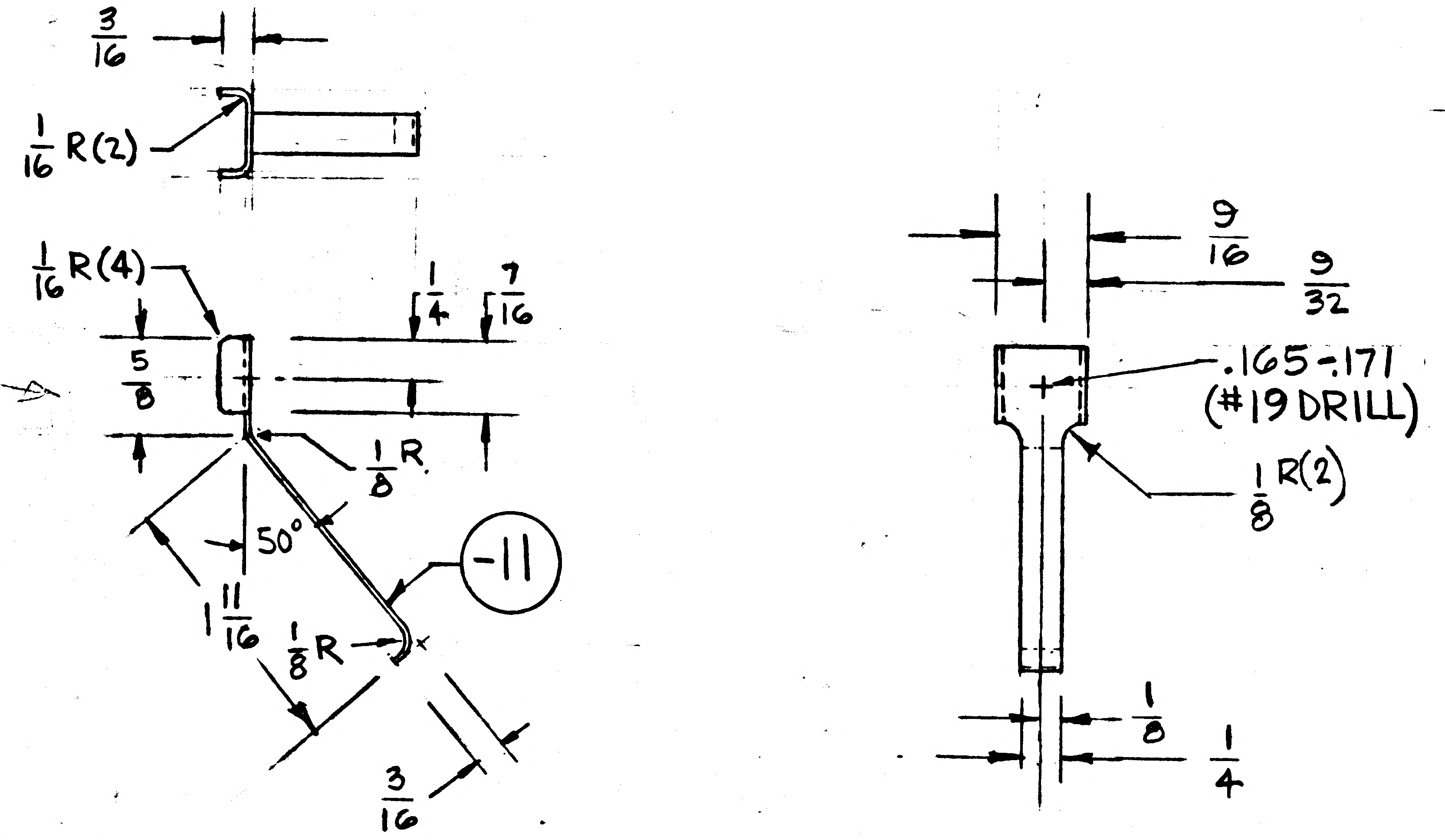
01

NAS 9-1100

DEFLECTION RATE	16 LBS/INCH	LOAD @ MAX DEFLECTION	4 LBS
THICKNESS OF MATERIAL	$.032^{\pm .002}$ INCHES	TOLERANCE ON PROPORTIONATE LOAD	± 15 %

NOTES:

1. -11 MATERIAL CRES STEEL SHEET
   US. GOVT SPECIFICATION : MIL-S-25043
   COMMERCIAL SPEC 17-7PH COND A (I&T, E)
2. HEAT TREAT TO CONDITION TH1050
   ROCKWELL C35-C42 PER LSP-14-5102
3. DRY FILM LUBE ENTIRE PART PER LSP-14-10300 TYPE II
4. DIMENSIONS SHOWN ARE BEFORE DRY FILM LUBE
5. CREW HAZARD- PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL SHARP BURRS & EDGES



3/16
1/16 R(2)
1/16 R(4)
1/4
7/16
5/8
1/8 R
50°
1 11/16
1/8 R
-11
3/16
9/16
9/32
.165-.171
(#19 DRILL)
1/8 R(2)
1/8
1/4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18671
SCALE FULL		SHEET 2.00

ENG 73.1 8-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18671
EO NO. A1
CONTROL INFO NO. LM29-1309

ON-11: 40° WAS 50°

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3521 PKG#1

(29)

REASON FOR EO: DWG ERROR.

DESCRIPTION OF EO: ON-11: 40° WAS 50°

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	DVT (70), LM-5/R (65)		
LM	LM-5 (35) THRU LM-15 (4-5)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JmS			PSX	J.W	W.J.	JaP	
DATE	12/6/68			12/5/68	12/13/68	11-18-68	12/6/68	12-26-68
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY: C

DRAWING TITLE: ALSEP BOOM SPRING. D.S. RETR. LANYARD SPOOL BRAKE

DRAWING NO. LDW280-18671

EO NO. A1

ISSUED BY LIAISON W. FRANK (7970) SECTION VD1 GROUP NO. 335 PL. 25

GAC 52.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18671	A3	SEE DWG
-18676	B1	
-18677	B1	
-18678	B1	
-18679	B1	
-18680	B3	
-18681	B2	
-18684	B1	
-18685	B1	
LDW280 -18686	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
				PGT			
DATE	4/8/69			4-2-69	4/8/69	4/9/69	4/16/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO.: LEO 280 | EO NO. 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1568
CONTROL INFO NO. LDL 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
668		A3
671		A4
676		B2
677		B2
678		B2
679		B2
680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DE . SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; SK 8/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

APPROVED BY	P8t				M			
DATE	7-29-69			7/29/69	8-2-69		8/?/69	8/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO: LEO 280 | EO NO. 1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18672 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 301	LDW280-28018	LM-2 (32)	4
LFM 301	LDW280-23677	LM-2 (32)	4

PART NO. LDW280-18672-11

GAEC SCH NO.

WORK PKG. FUNCTION NO. 111 (5)

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO A

PRIM NO. 215 AK(001) ME 71A 2/28/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3605

DRAWN BY	ROGERS 11-25-68	MATLS.	GY 11-16-68
LAYOUT BY	ROGERS 11-25-68		
CHECKED BY	2-27-69		
GP LEADER	PST 11-25-68		
V D I	JHS 11-25-68		
STRUCT		PROJ ENGR	JAP 11-16-68
STRUCT	WJH 11-25-68	REL GROUP	BOTTI 11-23-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE ~ ENG. COMPT. ACCUMULATOR SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18672 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00,1.10 200 & 3.00							EO A1 INITIAL DRAWING RELEASE	LM-2 LM-3			SMALL 2-27-68		
	2	1.00 & 1.10		LFM 301				(E)	INC EO A2 D. Fass	LM-2					

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	MAT'LS				
A										

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18672	A

SCALE NONE

SHEET 1.10 (A)

01

NAS 9-1100

QTY PFR ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18672-11	E	STRAP	CRES SHEET	MIL-S-5059	COMP301, 1/2 HARD	.050 × 3/4 × 6 3/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18672
A

SCALE NONE
SHEET 2.00

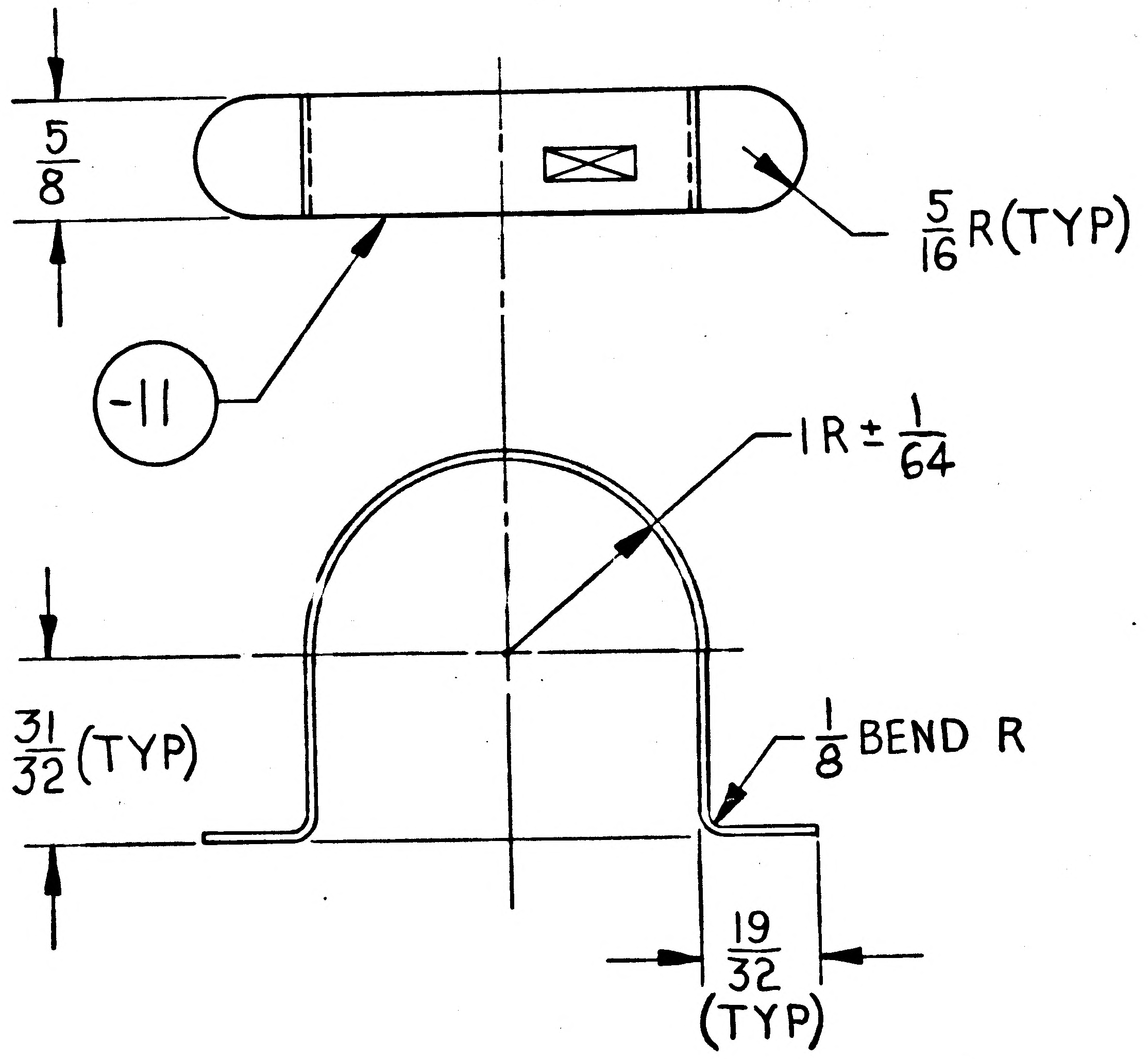
ENG 77.2 7-65

01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	√
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18672	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01

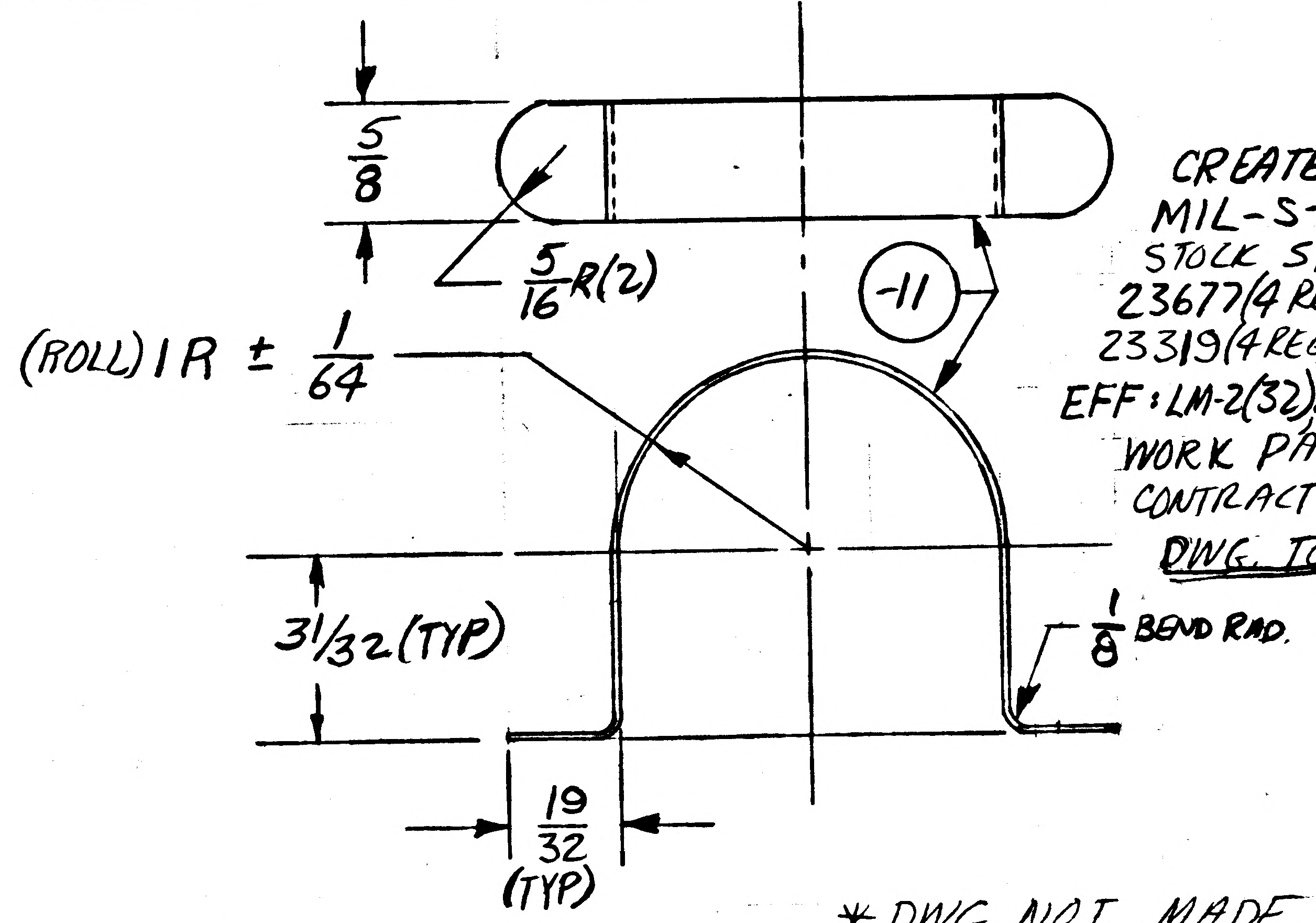
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18672		EO NO.	A1
CONTROL INFO NO. LDW280B6298			



CREATE -11 STRAP ~ .050 CRES SHEET, MIL-S-5059 COMP. 301, 1/2 HARD
STOCK SIZE: .050 X 3/4 X 6 3/8 N/A LDW280-23677 (4 REQ'D) EFF: LM-2(32) & LM-3(33), LDW280-23319 (4 REQ'D) EFF: LM-3(33), LDW280-28018 (4 REQ'D) EFF: LM-2(32). FIN: NONE, PROCESS: NONE
WORK PACKAGE FUNCTION NO. 111, I&T=E
CONTRACT NO: NAS 9-1100, DOCUMENTATION TYPE II,
DWG. TOL: FRACTIONS ± 1/32, DECIMALS ±.020, ANGLES ± 1/2°

*DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3605 PKG #1

REASON FOR EO: REDESIGNED MOUNTING PROVISIONS FOR DESCENT STAGE ACCUMULATOR.

DESCRIPTION OF EO: E.O. A1, INITIAL DWG RELEASE, PARTS MADE PER E.O.

GAEC EO RELEASE (5) 11-16-68 JK 11/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
*		NOT	REQD	APPROVED BY								Both
				DATE	11/16/68	11/16/68		11/16/68			11/16/68	11-16-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VD I	~~SUPPORT~~ MATLS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP ~ DESCENT STAGE ~ ENG. COMPARTMENT ~ ACCUMULATOR SUPPORT.	LDW280-18672	A1

ISSUED BY J.J. ROGERS / P. THORJUSEN X87222 SECTION VEH DES & INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18672 EO NO. A2
CONTROL INFO NO. LDW280B 6348

THIS E.O. IS A REVISION OF E.O. "A1"

ON-11: FOR N/A LDW280-23677 & LDW280-23319 REMOVE LM-3 EFF (WAS EFF LM-2 & LM-3)

ADD LFM 301 (LM-2) FOR N/A LDW280-23677 & LDW280-28018 (WAS EFF LM-2 & LM-3)

LFM

(REF) (E.O. A, WAS INITIAL DWG RELEASE~DWG NOT MADE)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3605 PKG #1, PG #1	LCD 3608 PKG #2 PG #1	(5)

REASON FOR EO: REDESIGN TO ADD ADDITIONAL SPT FOR A/S & D/S ACCUMULATORS

DESCRIPTION OF EO: THIS E.O. REVISED E.O. A1 ON-11: FOR N/A LDW280-23677 & LDW280-23319 REMOVED LM-3 EFF (WAS EFF: LM2 & LM3). ADDED LFM 301 (LM-2) FOR N/A LDW280-23677 & LDW280-28018 (WAS EFF: LM2 & LM3).

GAEC EO RELEASE: Ⓡ 11/27/68

MODEL	EFFECTIVITY EI	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM	LFM 301	LM-2 (32)	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK SCRAP -11

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/26/68			11/25/68			11/25/68	11-27-68

PRIORITY: C

DRAWING TITLE: STRAP ~ DESCENT STAGE ~ ENG. COMPT ACCUMULATOR SUPPORT

DRAWING NO.: LDW280-18672

EO NO.: A2

C. DIR. 11/25/68

ISSUED BY J. J. ROGERS / P. THORJUSEN / F. DERESPINIS X87222 SECTION VEH DES & INT GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LDW280-18673 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 301	LDW 280-66541	LM-3 (33)	4 EA
LFM 301	LDW 280-66541	LM-2 (32)	4 EA
PART NO. LDW280-18673-11 & -12		GAEC SCH NO.	

WORK PKG FUNCTION NO. III ⑤

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL' INFO A			
LAST DASH NO. USED	-12	PRIM NO. 207	HF 001 ME-3	A 12/10/68	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3608	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R. CLARK		RELIABILITY		
LAYOUT BY	R. CLARK				
CHECKED BY					
GP LEADER	RVT	11-18-68			
VEHDES INT	JHS	11-18-68			
STRUCT	AA	11-18-68	PROJ ENGR	JAP	11-18-68
STRUCT			REL GROUP	LM	11-19-68
WEIGHTS					

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ENGINE FEED
& DRAIN LINE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18673	A
SCALE NONE		SHEET 1.00 OF 4	

Ⓐ

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3.00		LFM 301		✓		EO-A1 LCD 3608	EO-A1 ~ INITIAL DWG RELEASE - DETAIL PARTS MADE PER E.O.	LM-3(33)	NOT	REQ'D.	N. OESTERHELD 12-3-68		
	2	1.00		LFM 301		✓		LEO 280-1225 LCD 3608	FOR -11 & -12 ADDED LM-2(32) EFFECTIVITY FOR N/A LDW 280-66541 W. Murphy 12-6-68	LM-2(32)	NOT	REQ'D.			

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18673	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18673-12	E	CLIP	CRES SHEET	MIL-S-5059	COMP 301, ½ HARD	.050 × 1⅛ × 1⅞	NONE	NONE	
								LDW280-18673-11	E	CLIP	CRES SHEET	MIL-S-5059	COMP 301, ½ HARD	.050 × 1⅛ × 1⅞	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18673 | A (A)

SCALE NONE | SHEET 2.00

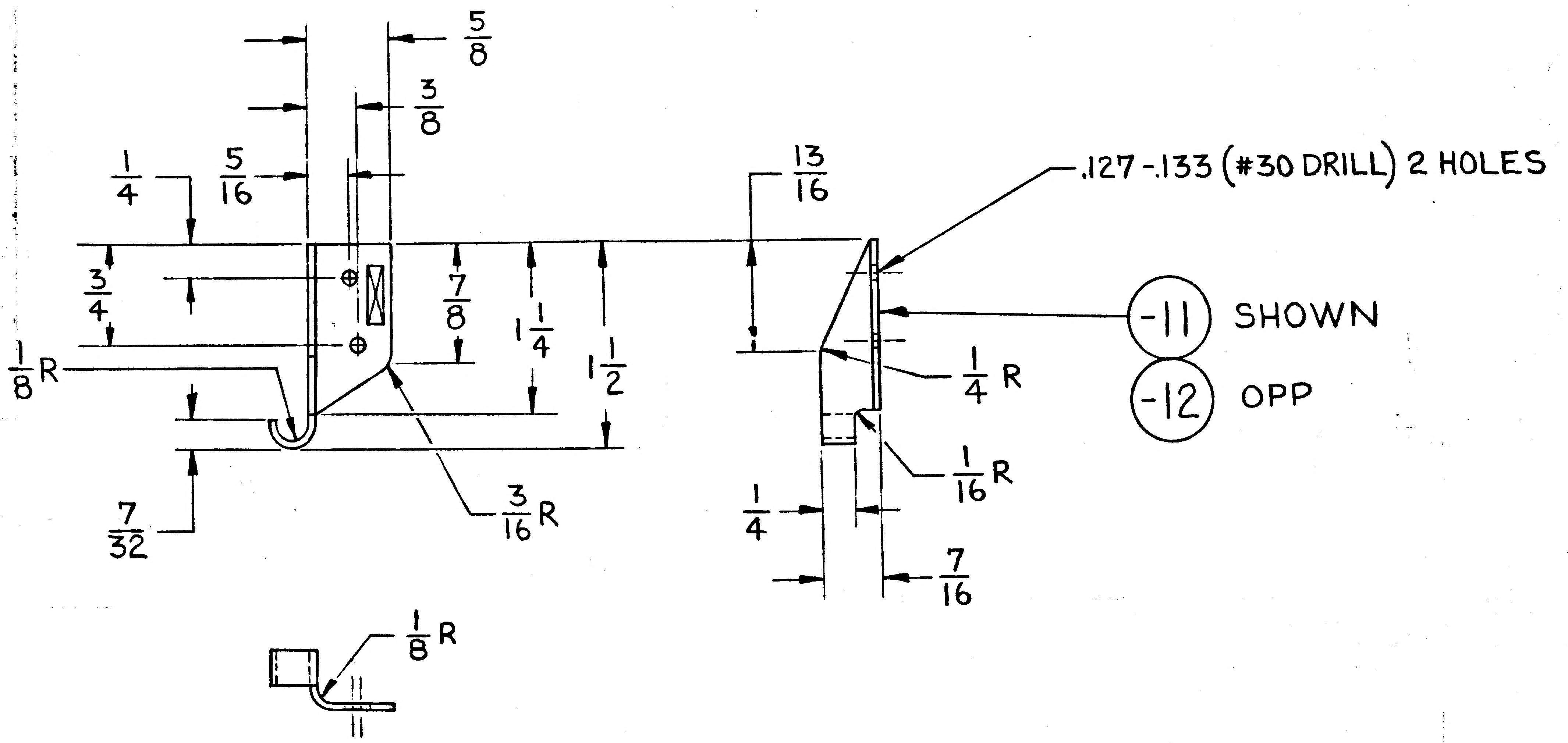
ENG 77.2 7-65

01 5

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



5/8
3/8
1/4
5/16
3/4
7/8
1 1/4
1 1/2
1/8 R
7/32
3/16 R
13/16
.127-.133 (#30 DRILL) 2 HOLES
-11 SHOWN
-12 OPP
1/4 R
1/16 R
1/4
7/16
1/8 R

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-18673	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-66

015

NAS 9-1100

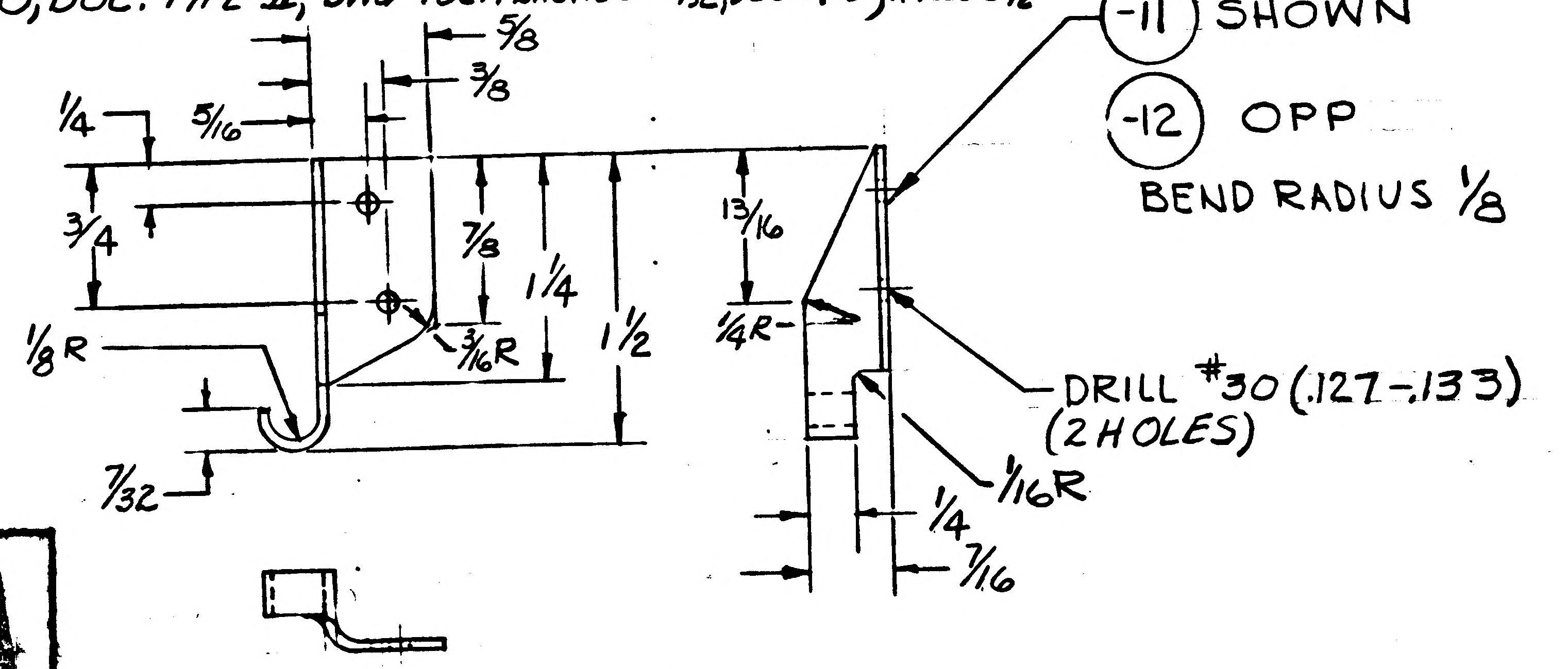
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18673		EO NO. A1
CONTROL INFO NO. LDW280B6304		

CREATE -11 & -12 CLIPS~ .050 CRES SHEET MIL-S-5059 COMP 301 ½ HARD
STOCK SIZE .050 X 1⅛ X 1⅞ N/A LDW280-66541 (4 EA) REQ/MOD EFF LM-3 (33)
FIN: NONE PROCESS: NONE WORK PACKAGE FUNCTION NO 111, I&T=E
CONTRACT NO NAS 9-1100, DOC. TYPE II, DWG TOL. FRACTIONS ± 1/32, DEC. ±.020, ANGLE ± ½°



LFM

*DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3608 PKG #1 PG1	(5)

REASON FOR EO: ADD ADDITIONAL ACCUMULATOR STRAP SUPPORTS

DESCRIPTION OF EO: EO A1~ INITIAL DWG RELEASE~ DETAIL PARTS MADE PER E.O.

GAEC EO RELEASE: 11/19/68

MODEL	EFFECTIVITY	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	EI [redacted] LFM301	LM-3 (33)	

DRAWING CHANGE REQD: * REVISE DWG

DISPOSITION OF PARTS: NOT REQD (RECORD EO / REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/18/68			11/18/68	AA 11/18		11/18/68	11-19-68
	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S ENGINE FEED & DRAIN LINE	LDW280-18673	A1

CDR 116868
ISSUED BY R. CLARK / P THORJUSEN x8 7222 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18674 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 301	LDW280-66541	LM-3(33)	1EA.
LFM 301	LDW280-66541	LM-2(32)	1EA.

PART NO LDW280-18674 -11,-12 -13,-14

GAEC SCH NO.

WORK PKG FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A

LAST SECT LTR USED

LAST DASH NO. USED -14

GRUMMAN REL INFO A

PRIM NO. 207 V/K(001) ME-39-12/9/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.015 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3608

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	MARZELLA 11-18-68	RELIABILITY	
LAYOUT BY	MARZELLA 11-18-68		
CHECKED BY			
GR.LEADER	PST 11-18-68		
VEH DESINT	JHS 11-18-68		
STRUCTS		PROJ ENGR	JAP 11-18-68
STRESS	AA 11-18-68	REL GROUP	LM 11-19-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLAMP
DESCENT STAGE - ENGINE COMP'T ACCUMULATOR SUPPORT

SIZE B

CODE IDENT NO. 26512

LDW280-18674 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		LFM 301		✓		EOA1 LCD 3608	EOA1 - INITIAL RELEASE PARTS MADE PER EO	LM-3(33)	NOT	REQ'D	F. ROTH 12-4-68	☒	☒
	2	1.00, 1.10		LFM 301		✓		LE0280-1225 LCD 3608 Ⓑ	FOR -11, -12, -13 & -14 ADDED LM-2(32) EFF FOR N/A LDW280-66541 J.J. Murphy 12-6-68	LM-2(32)	NOT	REQ'D			

CHG APPROVED

LTR	GROUP LDR	VEH DESINT	STRUCTS	STRUCT	WEIGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18674	A
SCALE NONE		SHEET 1.10	Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18674-14	E	CLAMP			MAKE FROM	GC501K238-2	NONE	NONE	
		-13	↕	↕			↕	↕	↕	↕	
		-12									
		LDW280-18674-11	E	CLAMP			MAKE FROM	GC501K238-2	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

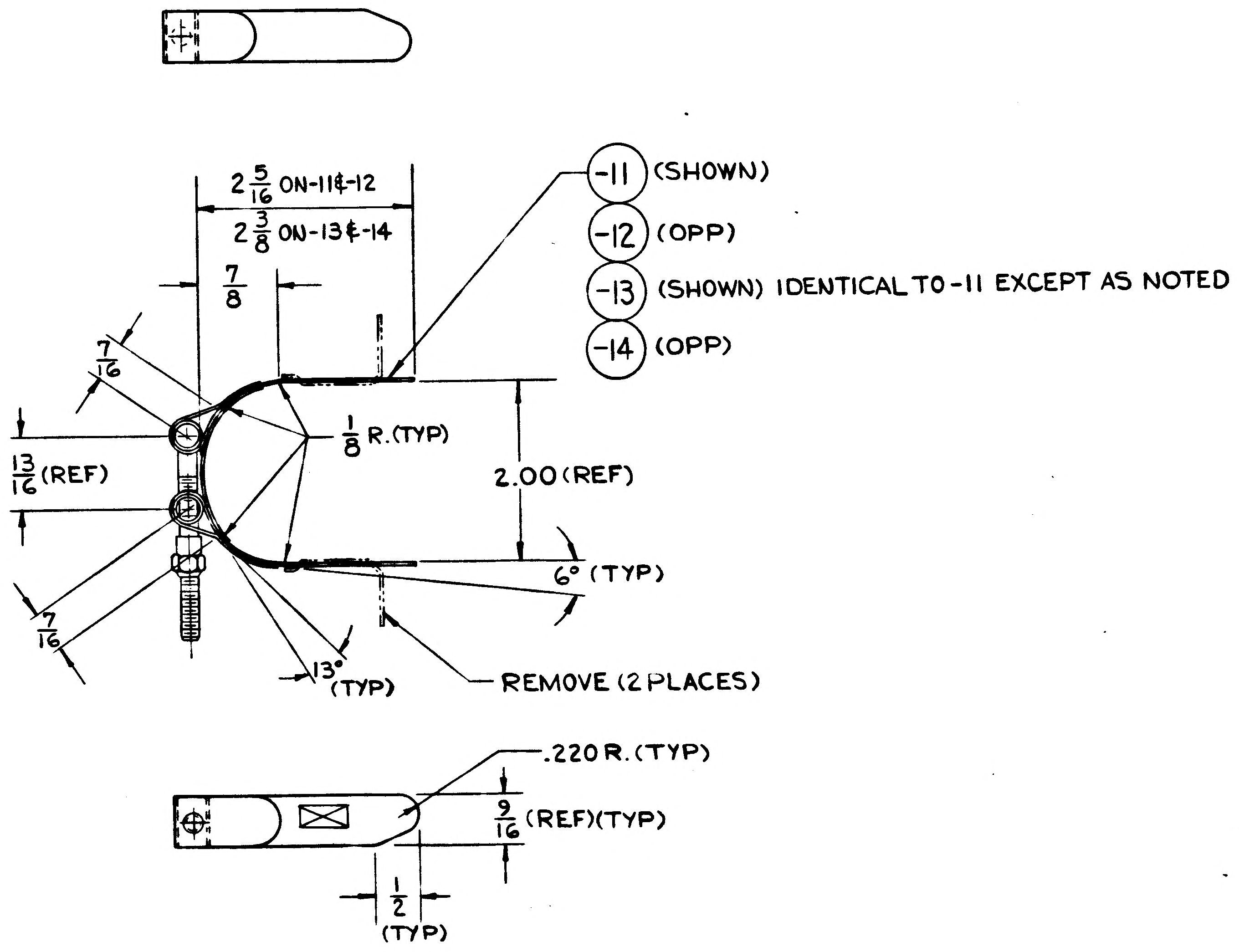
SIZE	CODE IDENT NO.		
B	26512	LDW280-18674	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


$2\frac{5}{16}$ ON -11 & -12
$2\frac{3}{8}$ ON -13 & -14
$\frac{7}{8}$
$\frac{7}{16}$
$\frac{13}{16}$ (REF)
$\frac{1}{8}$ R. (TYP)
2.00 (REF)
6° (TYP)
$\frac{7}{16}$
13° (TYP)
REMOVE (2 PLACES)
-11 (SHOWN)
-12 (OPP)
-13 (SHOWN) IDENTICAL TO -11 EXCEPT AS NOTED
-14 (OPP)
.220 R. (TYP)
$\frac{9}{16}$ (REF)(TYP)
$\frac{1}{2}$ (TYP)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18674	A
SCALE FULL		SHEET 3.00	

NAS 9-1100

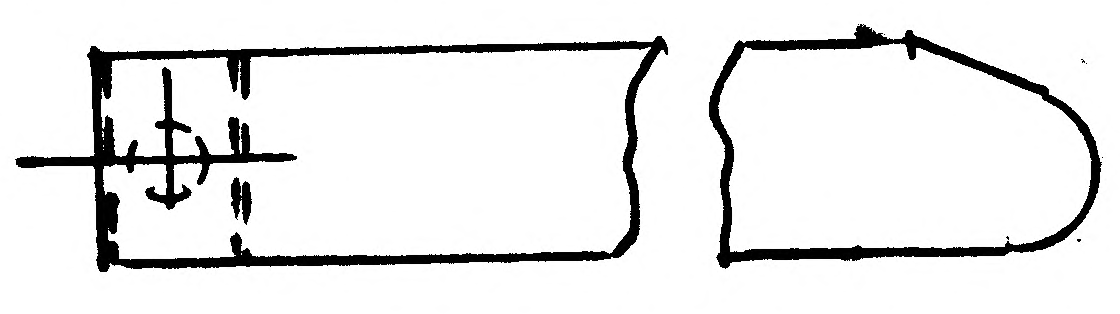
01
NAS 9-1100

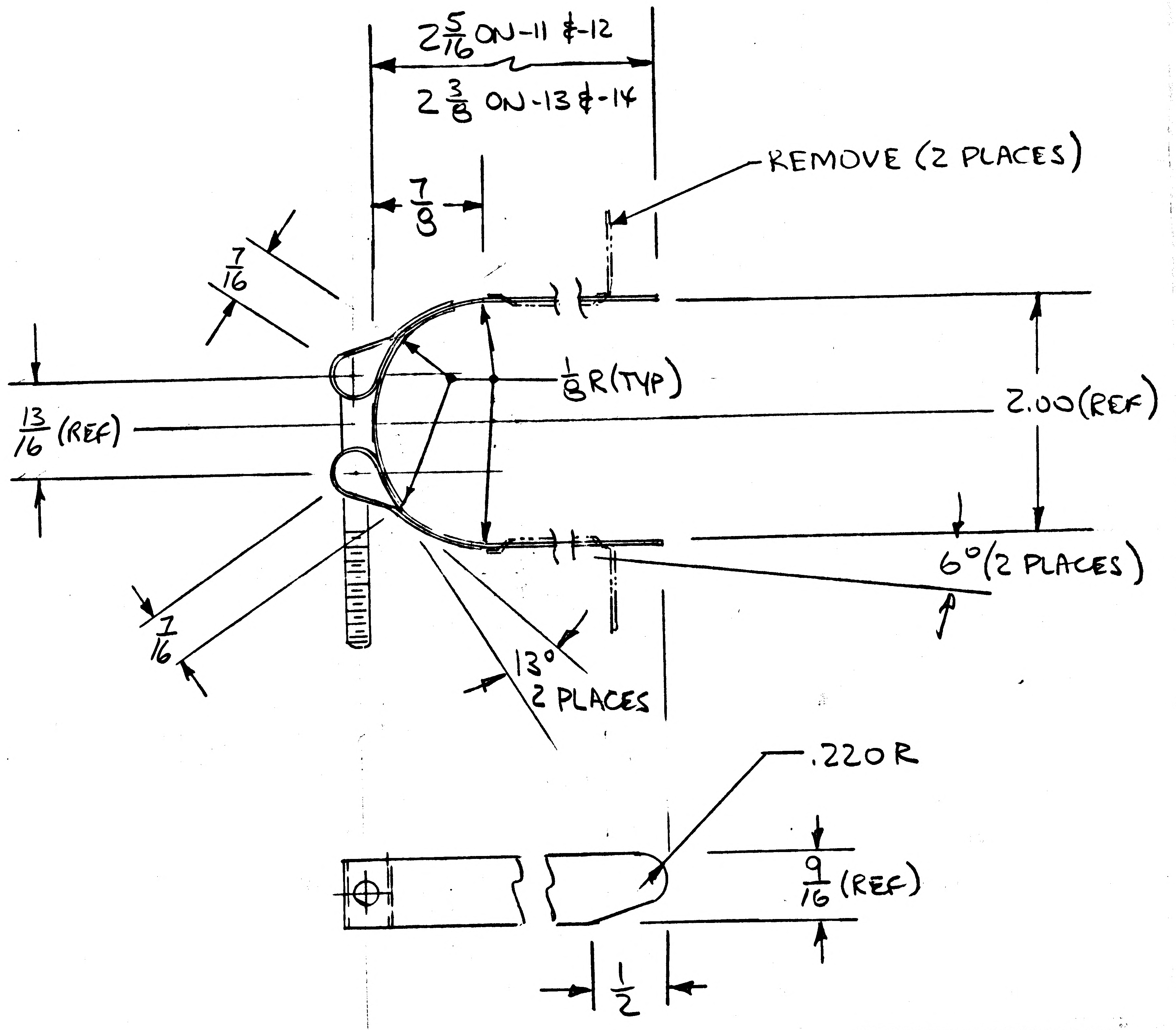
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18674		EO NO. A1
CONTROL INFO NO. LDW280B6305		

CREATE LDW280-18674-11 -12 -13 & -14 1EA REQ'D PER VEHICLE
N/A LDW280-66541. EFFECTIVE LFM301 LM-3 (33)
MAKE FROM GC501K238-2. FINISH ON REWORK AREAS NOT REQ'D.
PROCESS (NONE), I&T (E) DWG TOL: FRACTION ±1/32, DEC ±.015, ANGLE ±1/2°
DOC TYPE II,
CONT NO NAS-9-1100.





LDW280-18674-11 & -13 SHN
LDW280-18674-12 & -14 OPP

LFM

*DWG NOT MADE.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3608 PKG 1 PAGE 1	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
PART REQ'D FOR ADDITIONAL SUP'T	EO A1 - INITIAL RELEASE PARTS MADE PER EO	JC 11/18/8

MODEL	~~PROGRAMING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 301	LM-3	(33)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
* REVISE DWG	RECORD EO	NOT REWORK	REQ'D SCRAP	DATE	11/18/68			11/18/68	11/18/68		11/18/68	11-19-68
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLAMP-DESCENT STAGE ENGINE COMPT. ACCUMULATOR SUP'T.	LDW280-18674	A1

11/18/68
ISSUED BY AF. MARZELLA/P. THORJUSEN SECTION VEH DES. & INTEG GROUP NO. 335 PL 25

LDW280-18675 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM301	LDW280-66537	LM-3(33)	1 EA
PART NO. LDW280-18675-11 &-13		GAEC SCH NO.	

WORK PKG. FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. JX(001) 207 ME-3A-12/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3608

CONTRACT NO. NAS 9 -1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G.BELEV 11-18-68	RELIABILITY	
LAYOUT BY	G.BELEV		
CHECKED BY			
GP LEADER	P.S.T. 11-18-68		
VEH DES INT	J.H.S. 11-18-68		
STRUCT	C.W. 11-18-68	PROJ ENGR	J.A.P. 11-18-68
STRUCT		REL GROUP	LM. 11-19-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLAST DEFLECTOR
DESCENT-STAGE ~ REPAIR

SIZE B CODE IDENT NO. 26512 LDW280-18675 A Ⓐ

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00 & 3.00		LFM301 Ⓡ		✓		E0-A1 LCD 3608	E0-A1: INITIAL DWG. RELEASE, PARTS MADE PER E.O. w. murphy 12-10-68	LM-3(33)	NOT	REQ'D. 12/10/68	OSTER 12-6-68		

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18675	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18675-13	E	PLATE	MAKE	FROM	LDW 280-	17725-1	NONE	NONE	
		LDW 280-18675-11	E	PLATE	MAKE	FROM	LDW 280-	17725-1	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B CODE IDENT NO. 26512 LDW280-18675 A

SCALE NONE SHEET 2.00

ENG 77.2 7-66

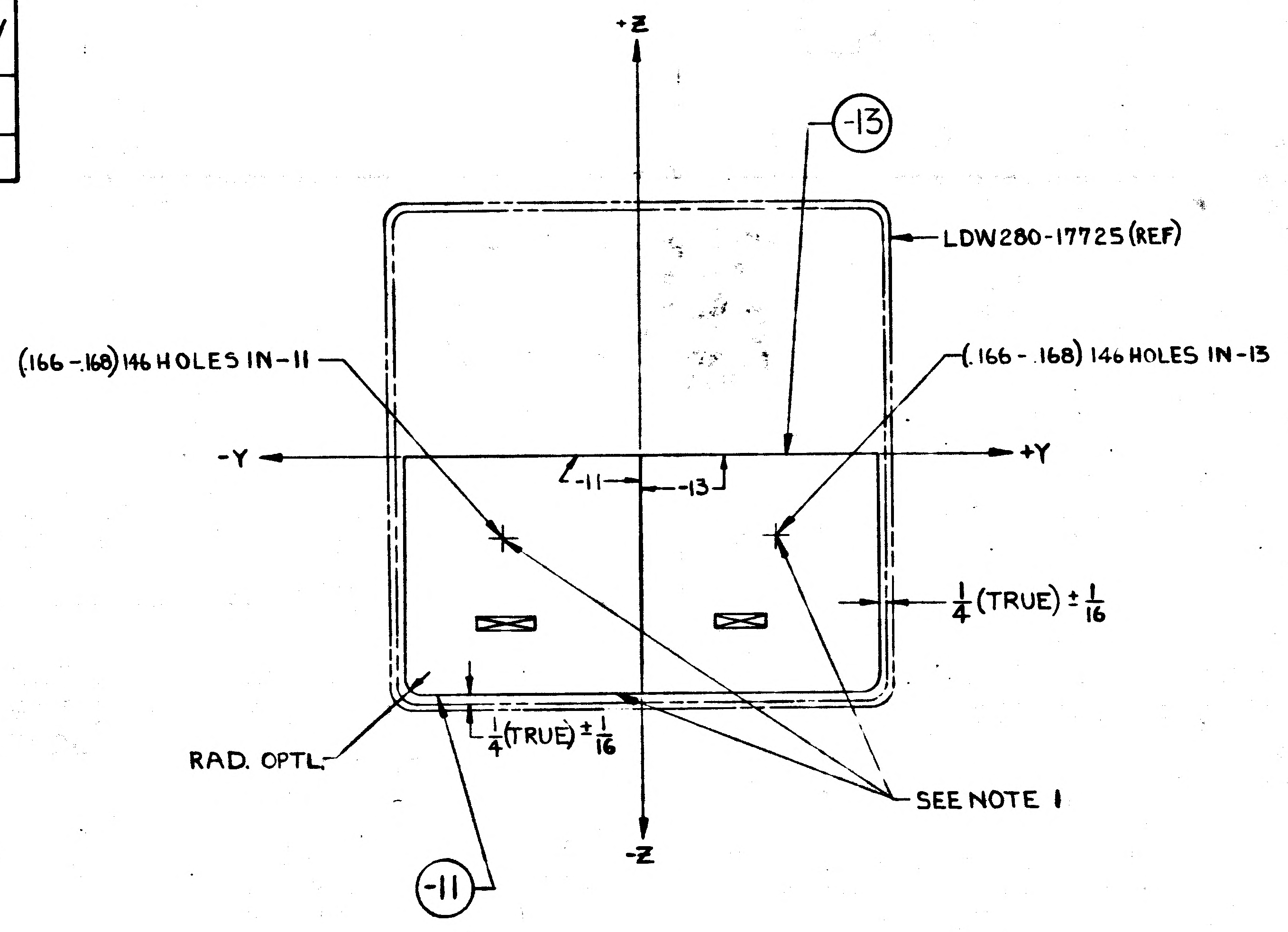
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. FINAL TRIM & HOLE LOCATIONS TO BE DETERMINED FROM MASTER APPROVED TEMPLATE.


+Z
-13
LDW280-17725 (REF)
(.166-.168) 146 HOLES IN-11
(.166-.168) 146 HOLES IN-13
-Y
+Y
-11
-13
$\frac{1}{4}$(TRUE) ± $\frac{1}{16}$
$\frac{1}{4}$(TRUE) ± $\frac{1}{16}$
RAD. OPTL.
SEE NOTE 1
-Z
-11

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18675	A
SCALE NONE		SHEET 3.00	

LDW280-18675 A

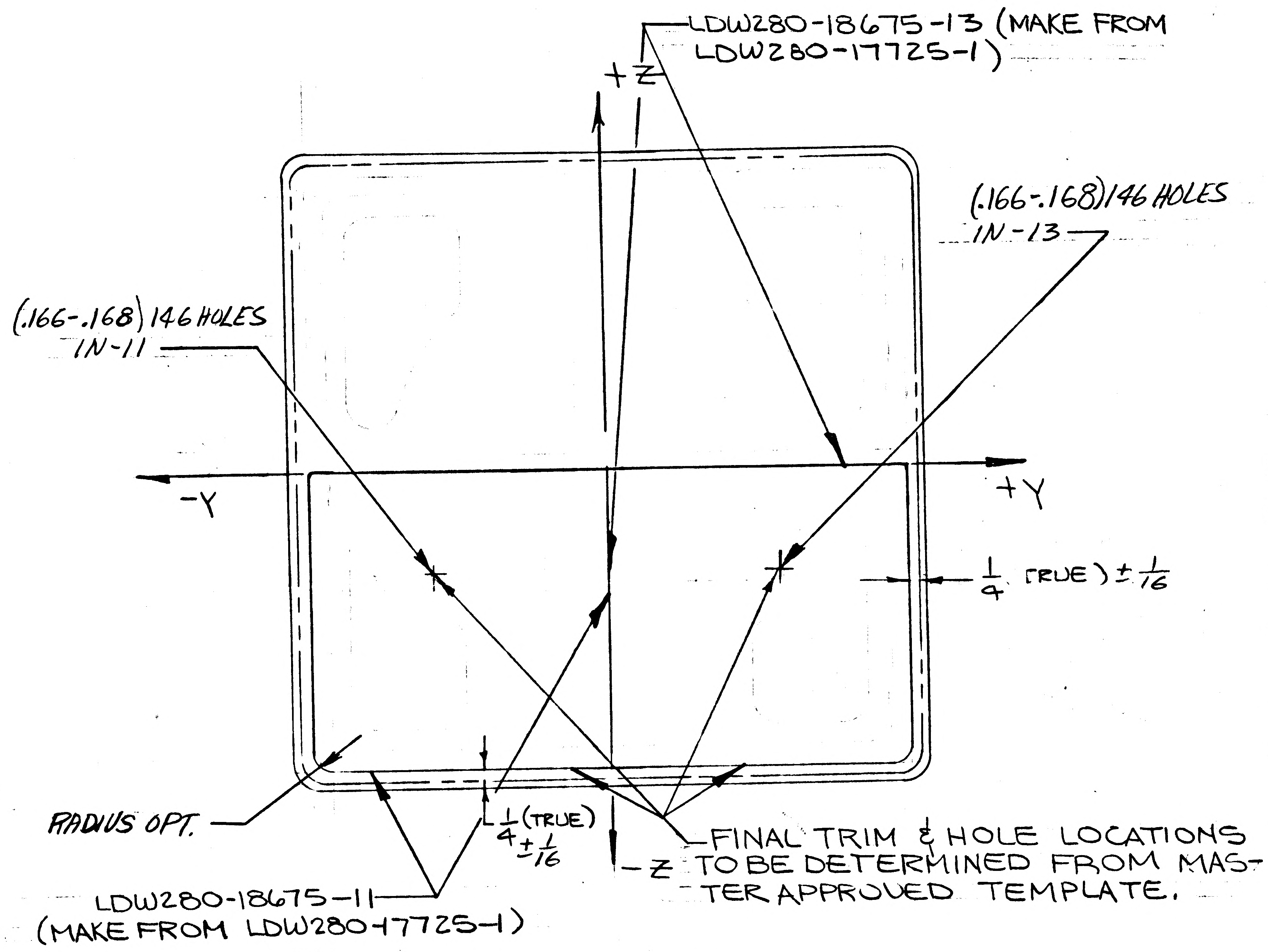
NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18675	EO NO.	A1
CONTROL INFO NO.	LDW280B6309		


LDW280-18675-13 (MAKE FROM LDW280-17725-1)
+Z
(.166-.168) 146 HOLES IN-13
(.166-.168) 146 HOLES IN-11
-Y
+Y
$\frac{1}{4}$ (TRUE) ± $\frac{1}{16}$
RADIUS OPT.
$\frac{1}{4}$ (TRUE) ± $\frac{1}{16}$
-Z
FINAL TRIM & HOLE LOCATIONS TO BE DETERMINED FROM MASTER APPROVED TEMPLATE.
LDW280-18675-11 (MAKE FROM LDW280-17725-1)

VIEW LKG DOWN

-11 & -13, 1 EA REQD
N/A LDW280-66537 FIN: NONE, PROCESS: NONE
CONTRACT #: NAS 9-1100
WORK PKG FUNCTION #111
I & T = E DOCUMENTATION TYPE II
DWG TOL: FRACTIONS ± $\frac{1}{32}$
DECIMALS ±.020
ANGLES ± ½°

LFM

* DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3608 ~ PKG 1 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC REQD RELEASE
TO PROVIDE ADDITIONAL SUPPORT FOR D/S ACCUMULATORS	EO A-1 INITIAL DRAWING RELEASE, PARTS MADE PER EO	JK 11/19/68

MODEL	EFFECTIVITY: ET ~~ACCOUNTING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 301	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
*		NOT REQD	

APPROVED BY	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
DATE	11/18/68			11/18/68	11/18/68		11/18/68	11-19-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLAST DEFLECTOR ~ D/S ~ REPAIR	LDW280-18675	A1

11-18-68
ISSUED BY G. BELEV / THORJUSEN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

LDW280-18676 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
LM		LM-6 (36)	1
LFM 200	LDW280-66510	LM-5 (35)	1
PART NO. LDW280-18676-19			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
LM		LM-6 (36)	1 EA
LFM 200	LDW280-66663	LM-5 (35)	1 EA
PART NO. LDW280-18676-11 -13 -15 & -17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-19	PRIM NO. 215	JK(001) ME-3A-1/18/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD2965, CCA1295	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	SHAPIRO	RELIABILITY	
LAYOUT BY	SHAPIRO		
CHECKED BY			
GR. LEADER	PST 12-4-68		
NEH DES INT	JHS 12-4-68		
STRUCTURES	WJH 12-4-68	PROJ ENGR	JAP 12-4-68
STRUCTURES		REL GROUP	LM 12-5-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE LOWER
THERMAL SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18676	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10 3.00 2.00 1.00		LFM 200					EO A1 INITIAL DRAWING RELEASE	LM-5 THRU LM-15			A. LITVINOFF 1-15-69		
	2	1.10 3.00		LFM 200 ②					ING. EO A2 DJ W. Murphy 1-17-69			1/18/69			

	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
CHG APPROVED	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18676	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18676-19	E	PLATE	TITANIUM SH	MIL-T-9604D	6AL-4V	.040 3/4 × 3 3/4	NONE	NONE	
		-17	↑	CLIP	↑	TYPE III COMP C	ANNEALED	.040 3/4 × 1 5/8	↑	↑	
		-15	↕	CLIP	↕	↕	↕	.040 1 1/8 × 1 3/8	↕	↕	
		-13	↓	CLIP	↓	MIL-T-9604D	6AL-4V	.040 1 1/2 × 2 3/4	↓	↓	
		LDW280-18676-11	E	CLIP	TITANIUM SH	TYPE III COMP C	ANNEALED	.040 1 1/2 × 1 5/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18676	A

SCALE NONE

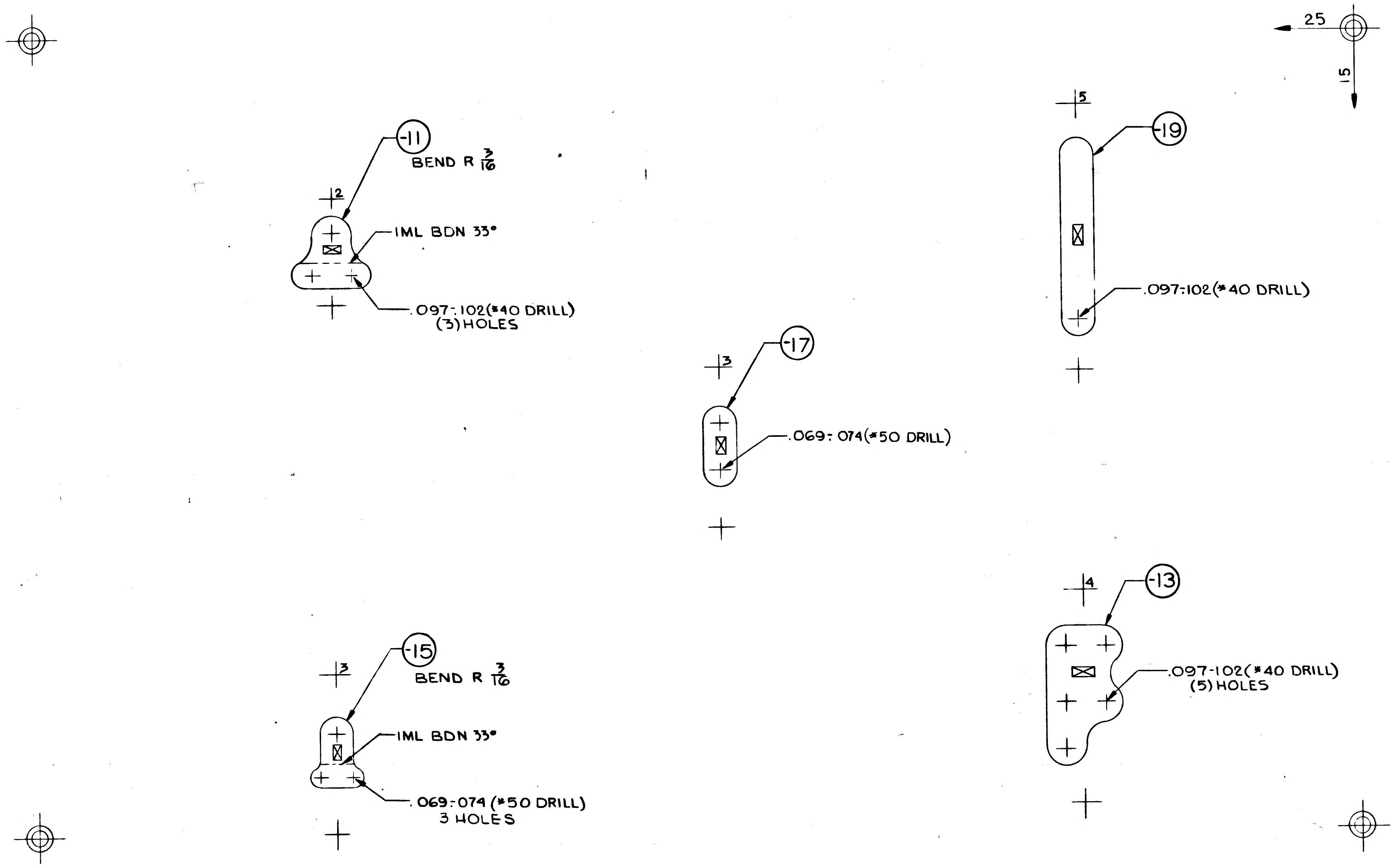
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


25
15
-11
BEND R 3/16
2
IML BDN 33°
.097-.102(#40 DRILL)
(3) HOLES
5
-19
.097-.102(#40 DRILL)
3
-17
.069-.074(#50 DRILL)
4
-13
.097-.102(#40 DRILL)
(5) HOLES
3
-15
BEND R 3/16
IML BDN 33°
.069-.074 (#50 DRILL)
3 HOLES

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18676	A
SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

K2

ENG 73.3 REV 3-67

01

NAS 9-1100

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-18676	EO NO. A1
CONTROL INFO NO. LDW280B6435	

-CREATE -11,-13,-15,-17 & -19

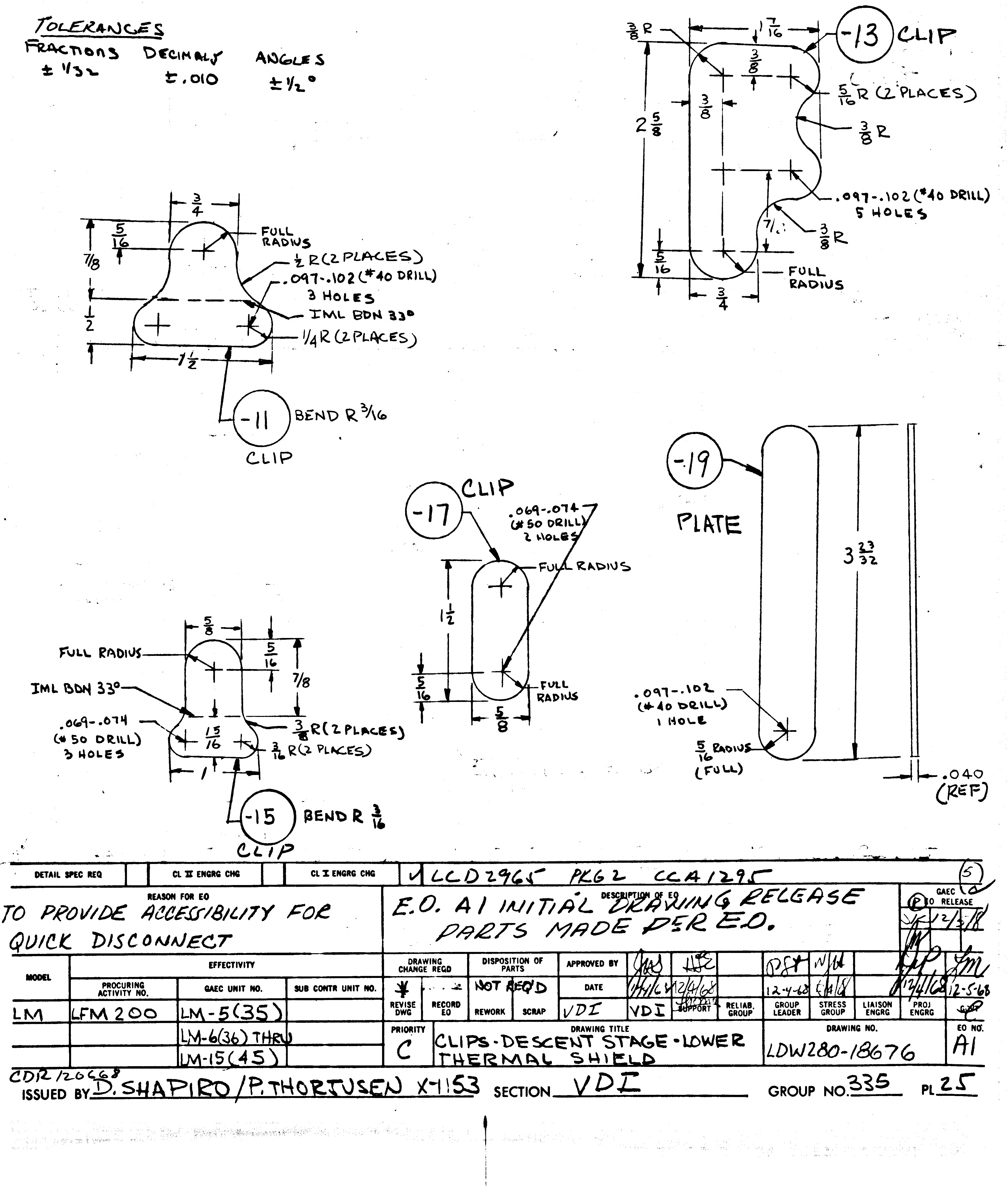
FOR -11 & -13, N/A LDW280-66663 1 REQ'D/MOD LFM200 LM-5(35), LM-6(36) THRU LM-15(45)
FOR -15 & -17, N/A LDW280-66663 1 REQ'D/MOD LFM200 LM-5(35), LM-6(36) THRU LM-15(45)
FOR -19 , N/A LDW280-66510 1 REQ'D/MOD LFM 200 LM-5(35), LM-6(36) THRU LM-15(45)
MATERIAL: TITANIUM SH GOV'T SPEC: MIL-T-9046D TYPE III COMP C } FOR -11, 13, -15, -17 & -19
COML SPEC: 6AL-4V ANNEALED PROCESS SYM: NONE FINISH NO NONE
THICKNESS: .040

¥ DWG NOT MADE
** ALL DIMENSIONS ARE FOR LOFTING PURPOSES ONLY

LFM

TOLERANCES

FRACTIONS	DECIMALS	ANGLES
± 1/32	±.010	±1/2°



-13 CLIP
3/8 R
1 7/16
3/8
3/8
5/16 R (2 PLACES)
3/8 R
2 5/8
.097-.102 (#40 DRILL) 5 HOLES
3/8 R
5/16
3/4
FULL RADIUS
3/4
5/16
7/8
1/2
1 1/2
FULL RADIUS
1/2 R (2 PLACES)
.097-.102 (#40 DRILL) 3 HOLES
IML BDN 33°
1/4 R (2 PLACES)
-11 BEND R 3/16
CLIP
-19
PLATE
3 23/32
.097-.102 (#40 DRILL) 1 HOLE
5/16 RADIUS (FULL)
.040 (REF)
-17 CLIP
.069-.074 (#50 DRILL) 2 HOLES
FULL RADIUS
1 1/2
5/16
5/8
FULL RADIUS
5/8
5/16
7/8
FULL RADIUS
IML BDN 33°
.069-.074 (#50 DRILL) 3 HOLES
15/16
3/8 R (2 PLACES)
3/16 R (2 PLACES)
1
-15 BEND R 3/16
CLIP

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD2965 PKG 2 CCA1295

REASON FOR EO	DESCRIPTION OF EO
TO PROVIDE ACCESSIBILITY FOR QUICK DISCONNECT	E.O. A1 INITIAL DRAWING RELEASE PARTS MADE PER E.O.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
¥		NOT REQ'D	

APPROVED BY		HSE		RST	WH				
DATE	12/4/68	12/4/68		12-4-68	12/4/68		12/4/68	12-5-68	
	VDI	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC

GAEC EO RELEASE 12/5/68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIPS-DESCENT STAGE-LOWER THERMAL SHIELD	LDW280-18676	A1

CDR 120668
ISSUED BY D. SHAPIRO/P. THORJUSEN X-4153 SECTION VDI GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 — EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18671 ✓	A3	SEE DWG
-18676 ✓	B1	↑
-18677	B1	
-18678	B1	
-18679	B1	
-18680	B3	
-18681	B2	
-18624	B1	
-18685	B1	↓
LDW280-18686	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-15(45) NO LONGER REQD	DELETED LM-15(45) EFF FROM — *	VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG — RECORD EO
DISPOSITION OF PARTS: REWORK — ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				P8T				
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION YEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1568
CONTROL INFO NO. LDW 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
677		B2
678		B2
679		B2
680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69 (R)
JK 8/18/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	PBf				M			
DATE	7-29-69			7/29/69	8-2-69		8/4/69	8/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO. LEO 280
EO NO. 1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.. REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-55	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3994 PKG92	(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * ,N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: JK 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

APPROVED BY	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	-	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1735

CDR110369
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046
SECTION VDI
GROUP NO. 335
PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. LDW280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQ'MTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↑	↑	A8
✓ -18676-11,-13,-15,-17,-19			B4
-18677-11,-13,-15,-17,-19			B4
-18678-11,-13,-15,-17,-19			B4
-18679-11,-13,-15,-17,-19			B4
-18680-11,-13,-15,-17,-19	↓	↓	B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY	PS						
DATE	2-9-70			2/7/70	2/10/70		2/16/70	2-18-70
VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280 -18676		EO NO. B5
CONTROL INFO NO. LM-5-23281		

IN M/B FOR -15 & -17

ADD LM10(40) THRU 13(43) EFF N/A LDW280-66663
(1 EA/MOD)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994

REASON FOR EO

TO REMOVE INTERFERENCE WITH FUEL BRACKET QUAD III

DESCRIPTION OF EO

IN MOD BLK FOR -15 & 17 FOR N/A LDW280-66663 ADDED LM10(40) THRU 13(43) EFF) (1EA./MOD)

GAEC EO RELEASE 497 9/22/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	
		13(43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				DR	KC			
✓		NOT	READ	DATE	9-21-70			9/16/70	9/9/70	9-9-70	9/21/70	9/10/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLIP D/S-REM, BASE HEAT SHIELD	LDW280-18676	B5

ISSUED BY DON RAGAS / K. CHILDS SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

PART NO. LDW280-18677-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	3
		LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
		LM-10(40)	3
		LM-9(39)	3
		LM-8(38)	3
		LM-7(37)	3
LM		LM-6(36)	3
LFM 200	LDW280-66510	LM-5(35)	3

LDW280-18677 A

LFM

PART NO. LDW280-18677-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	6
		LM-14(44)	6
		LM-13(43)	6
		LM-12(42)	6
		LM-11(41)	6
		LM-10(40)	6
		LM-9(39)	6
		LM-8(38)	6
		LM-7(37)	6
LM		LM-6(36)	6
LFM 200	LDW280-66510	LM-5(35)	6

PART NO. LDW280-18677-13 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
LM		LM-6(36)	2 EA
LFM 200	LDW280-66510	LM-5(35)	2 EA

PART NO. LDW280-18677-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
LM		LM-6(36)	4
LFM 200	LDW280-66510	LM-5(35)	4

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	100	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED		GRUMMAN REL INFO A PRIM NO. VK(001)
LAST DASH NO. USED	-19	207 VE-16 ?/?/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965	

CONTRACT NO. NAS 9-1100 LINE ITEM DOCUMENTATION TYPE II

DRAWN BY	SHAPIRO 12-18-68	THERMO	MV	12-17-68	
LAYOUT BY	SHAPIRO 12-18 66				
CHECKED BY					
GP LEADER	PST	12-17-68			
VDI	JAP	12-17-68			
STRUCT		PROJ ENGR	JAP	12-17-68	
STRUCT	NM	12-17-68	REL GROUP	LM	12-17-68
WEIGHTS					

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAPS
DESCENT STAGE ~ LOWER
THERMAL SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-18677	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CCA1235 ECP H053

CDR 1-25-69

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00, 1.10, 2.00 & 3.00		LFM 200					EO A1 INITIAL DRAWING RELEASE	LM-5 LM-6 THRU LM-15			M. SMALL 3-6-69		
	2	1.00, 1.10, 200 & 3.00		LFM 200					INC EO A2	LM-5 LM-6 THRU LM-15					
	3	1.00, 1.10, 200 & 3.00		LFM 200					INC EO A3	LM-5 LM-6 THRU LM-15					
	4	1.00, 1.10, 2.00 & 3.00		LFM 200					INC EO A4	LM-5 LM-6 THRU LM-15					
	5	1.10 & 3.00		LFM 200		✓		LCD 2965 CCA 1235	REF EO A1; ADDED NOTE 1 w murphy 3-10-69 wm	LM-5 LM-6 THRU LM-15	NOT	REQ'D.		3/8/69	3-14-69

CHG APPROVED

LTR	GROUP LDR	V D I	STRUCT	STRUCT	WEIGHTS	THERMO
A	3-12-69	3/12/69	N.M. 3/18/69			MMR 3/14/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18677	A
SCALE NONE		SHEET 1.10	

G 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18677-19	E	STRAP	TITANIUM SH.	MIL-T-9046	6AL-4V STA	.020 × 3 × 19	NONE	NONE	
								↑ -17	E	STRAP	↑	↑	↑	.020 × 3 × 27	↑	↑	
								-15	E	STRAP				.020 × 2 × 12			
								↓ -13	E	STRAP	↓	↓	↓	.020 × 2 × 12	↓	↓	
								LDW 280-18677-11	E	STRAP	TITANIUM SH.	MIL-T-9046	6AL-4V STA	.020 × 2 × 13	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18677	A
SCALE NONE			SHEET 2.00

01

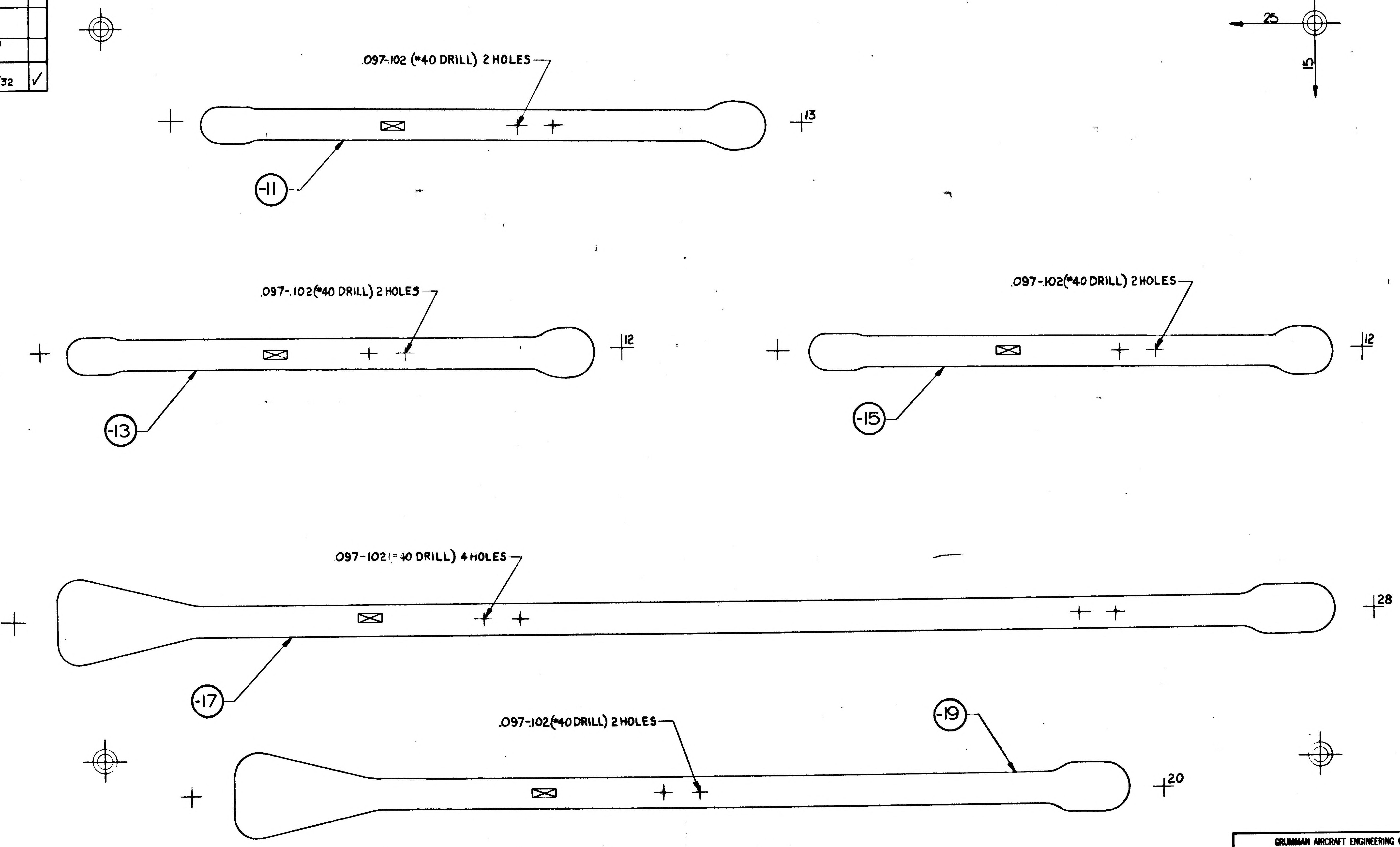
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1 UPON INITIAL RELEASE OF THIS DWG.

TOOLING FOR LDW280-18677-11	IS IDENTICAL TO	LDW280-66510-107
-13		-109
-15		-111
-17		-113
TOOLING FOR LDW280-18677-19	IS IDENTICAL TO	LDW280-66510-115

TRAN F? 3-4-67 OVERLAY ES


25
15
.097-.102 (#40 DRILL) 2 HOLES
13
-11
.097-.102(#40 DRILL) 2 HOLES
12
-13
.097-.102(#40 DRILL) 2 HOLES
12
-15
.097-.102(#40 DRILL) 4 HOLES
28
-17
.097-.102(#40 DRILL) 2 HOLES
-19
20

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18677	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

ENG 73.3 REV. 5-67

LDW280-18677 A

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18677	EO NO. A1
CONTROL INFO NO. LDW280B6581	

CREATE -11,-13,-15,-17 & -19
-11,-13,-15,-17 & -19 ARE IDENTICAL TO LDW280-66510-107,-109,-111,-113 & -115
RESPECTIVELY EXCEPT -11,-13,-15,-17 & -19 ARE MADE FROM
TITANIUM SH, .020 THICK, 6AL-4V STA, MIL-T-9046

IN M/B
FOR-11, N/A LDW280-66510, LFM200 LM-5(35), LM-6(36) THRU LM-15(45) 1 EA
FOR-13,
FOR-15,
FOR-17,
FOR-19, N/A LDW280-66510, LFM200 LM-5(35), LM-6(36) THRU LM-15(45) 1 EA

* DWG NOT MADE
LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR
LDW280-66510-107, -109, -111, -113 & -115.

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2965 PKG 2 CCA 1235 ⑤

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS
LM-5

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE
PARTS MADE PER E.O.

GAEC EO RELEASE: 12/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					PBF	NM			
DATE	12/17	12/17			12/17/68	12-17-68			12-17-68

PRIORITY: C
DRAWING TITLE: STRAPS-D/S-LOWER THERMAL SHIELD
DRAWING NO.: LDW280-18677
EO NO.: A1

CDR171868
ISSUED BY D.SHAPIRO/P.THORJUSEN Y86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18677
EO NO. A3
CONTROL INFO NO. LDW280B6721

THIS E.O. CANCELS E.O. A2

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2965, PKG#2, PG#18 CCA 1235 ECP(H053) (5)

REASON FOR EO: LMG #F. 1/25/69
TO FACILITATE HANDLING CHARACTERISTICS

DESCRIPTION OF EO:
REF: A2
CANCELED E.O. A2

GAEC EO RELEASE: 1/25
JK 1/27/9

MODEL	EFFECTIVITY EI [redacted]	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5(35)	
		LM-6(36)Thru	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY								
DATE	1/25/69	1/25/69		1-25-69	1/25/69		1/25/69	1-27-69
	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS-D/S-LWR THRML SHLD	LDW280-18677	A3

1-25-69
ISSUED BY D.SHAPIRO/P.THORJUSEN X-87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

32.1 REV 3-65

DWG. NO. LDW280-18677 EO A4
CONTROL INFO NO. LM5-21466
28

THIS E.O. REVISES E.O. A1

IN M/B

		IS	WAS
-11	N/A LDW280-66510 QTY REQD	4	1
-13		2	1
-15		2	1
-17		6	1
-19		3	1

THIS IS AN ORIGINAL EO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG 2 CCA 1235 (5)

REASON FOR EO: CORRECT MANUF. REQUIREMENT

DESCRIPTION OF EO: THIS EO. REVISES EO A1 NOTED

GAEC EO RELEASE: ★ 7-11-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5 (35)	
		LM-6 (36) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG	CONFIG.
APPROVED BY	JAP			DJS	W.H.	[illegible]	JAP	[illegible]
DATE	7/9/69			7/9/69	[illegible]	[illegible]	7/9/69	[illegible]

PRIORITY: C5
DRAWING TITLE: STRAPS - D/S - LOWER THERMAL SHIELD
DRAWING NO.: LDW280-18677
EO NO.: A4

ISSUED BY J. PAULSEN X86755 SECTION VD1 GROUP NO. 335 P. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280 -18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678		B1	
-18679		B1	
-18680		B3	
-18681		B2	
-18684		B1	
-18685		B1	↓
LDW280 -18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	
APPROVED BY								
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1568
CONTROL INFO NO. LDW 280 B E 24		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
678		B2
679		B2
680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE (R)
8-13-69
DK 8/18/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	APPROVED BY	PB				M		
				DATE	7-29-69			7/29/69	8-2-69		8/1/69	8/16/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SEE DRAWINGS	LEO 280	1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,-13,-15,-17,-19	-	-		B3
-18678-11,-13,-15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG92 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR *, N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: K 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQD REWORK | SCRAP

APPROVED BY									
DATE	-	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1735

CDR 110369
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. LD" 280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. ✱	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↑	↑	A8
✓ -18676-11,-13,-15,-17,-19			B4
✓ -18677-11,-13,-15,-17,-19			B4
-18678-11,-13,-15,-17,-19			B4
-18679-11,-13,-15,-17,-19			B4
↓ -18680-11,-13,-15,-17,-19	↓	↓	B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR ✱ REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	PSF							
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO. 1847

CDR 2/20/70
ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1911

CONTROL INFO NO. LDW280C1146

FOR -* IN MOD/BLK ADD LM-10(40) THRU LM-13(43) EFF.

DWG NO.	DASH* NO.	TITLE	N/A	QTY/MOD	CHANGE NO.
✓ LDW280-18677	-19	SEE DWG	LDW280-60511	3	B5
-18680	-11	"	LDW280-60511	2	B7
-13681	-11	"	LDW280-60511	2	B6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 92

REASON FOR EO: PARTS INCORRECTLY REMOVED FROM LM 10 THRU LM-13 & TO AGREE WITH USAGE ON NHA

DESCRIPTION OF EO: FOR -* ADDED LM-10(40) THRU LM-13(43) EFF

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY					NM			
DATE	11-17-70			11/17/70	11/17/70		11-18-70	11-18-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1911

CDR 11/20/70

ISSUED BY G.BARNES | G. HANSMANN X87222 SECTION VDI GROUP NO 0335 PL 025

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NAS 9-1100

LDW280-18678 A

PART NO. LDW280-18678-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM		LM-6(36)	1
LFM 200	LDW280-66510	LM-5(35)	1

PART NO. LDW280-18678-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
LM		LM-6(36)	4
LFM 200	LDW280-66510	LM-5(35)	4

PART NO. LDW280-18678-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	8
		LM-14(44)	8
		LM-13(43)	8
		LM-12(42)	8
		LM-11(41)	8
		LM-10(40)	8
		LM-9(39)	8
		LM-8(38)	8
		LM-7(37)	8
LM		LM-6(36)	8
LFM 200	LDW280-66510	LM-5(35)	8

PART NO. LDW280-18678-13-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	2 EA
		LM-14(44)	2 EA
		LM-13(43)	2 EA
		LM-12(42)	2 EA
		LM-11(41)	2 EA
		LM-10(40)	2 EA
		LM-9(39)	2 EA
		LM-8(38)	2 EA
		LM-7(37)	2 EA
LM		LM-6(36)	2 EA
LFM200	LDW280-66510	LM-5(35)	2 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.10	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 215 JK(00) ME-16H-2/18/1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965 CCA 1235

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	D. SHAPIRO	RELIABILITY	
LAYOUT BY	D.SHAPIRO	THERMO	MM 12-17-68
CHECKED BY	Szalwinski 1-21-69		
GR LEADER	FST 12-17-68		
VEH DES INT	JAP 12-17-68		
STRUCTURES	N.M. 12-17-68	PROJ ENGR	JAP 12-17-68
STRUCTURES		REL GROUP	L.M 12-17-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAPS
DESCENT STAGE LOWER
THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18678 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00 1.10 2.00 3.00	4A 3C 5C	LFM200					EO A1 INITIAL DRAWING RELEASE	LM-5 THRU LM15			A LITVINOFF 1-20-69		
	2	1.10 2.00		LFM 200					INC EO A2						
	3	1.10 2.00		LFM200					INC EO A3 N.J. Szalwinski						
	4	1.00 2.00 3.00	5D 7A	LFM 200					INC EO A4	LM-5 THRU LM-15			R.PRIZZI 2-5-69		
	5	1.00,3.00		LFM 200		✓		LCD2965 CCA1235 Ⓟ	REF E.O.A1: ADDED NOTE *1 N.J. J. Bell		NOT	REQD			

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A	Thoyrson 2-11-69	JEP 2/12/69		NM 2/14/69			T Wilson 2/14/69				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18678	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18678-19	E	STRAP	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL-4V STA	.020 × 1 3/8 × 23 5/8	NONE	NONE	5D
		-17	↕	↕	↕	↕	↕	.020 × 1 3/8 × 22 1/2	↕	↕	5C
		-15	↕	↕	↕	↕	↕	.020 × 1 3/8 × 25 1/2	↕	↕	3C
		-13	↕	↕	↕	↕	↕	.020 × 1 3/8 × 67 5/8	↕	↕	4B
		LDW280-18678 -11	E	STRAP	TITANIUM SH	MIL-T-9046 TYPE III COMP C	6AL-4V STA	.020 × 2 × 26 1/2	NONE	NONE	7A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18678	A
SCALE NONE			SHEET 2.00

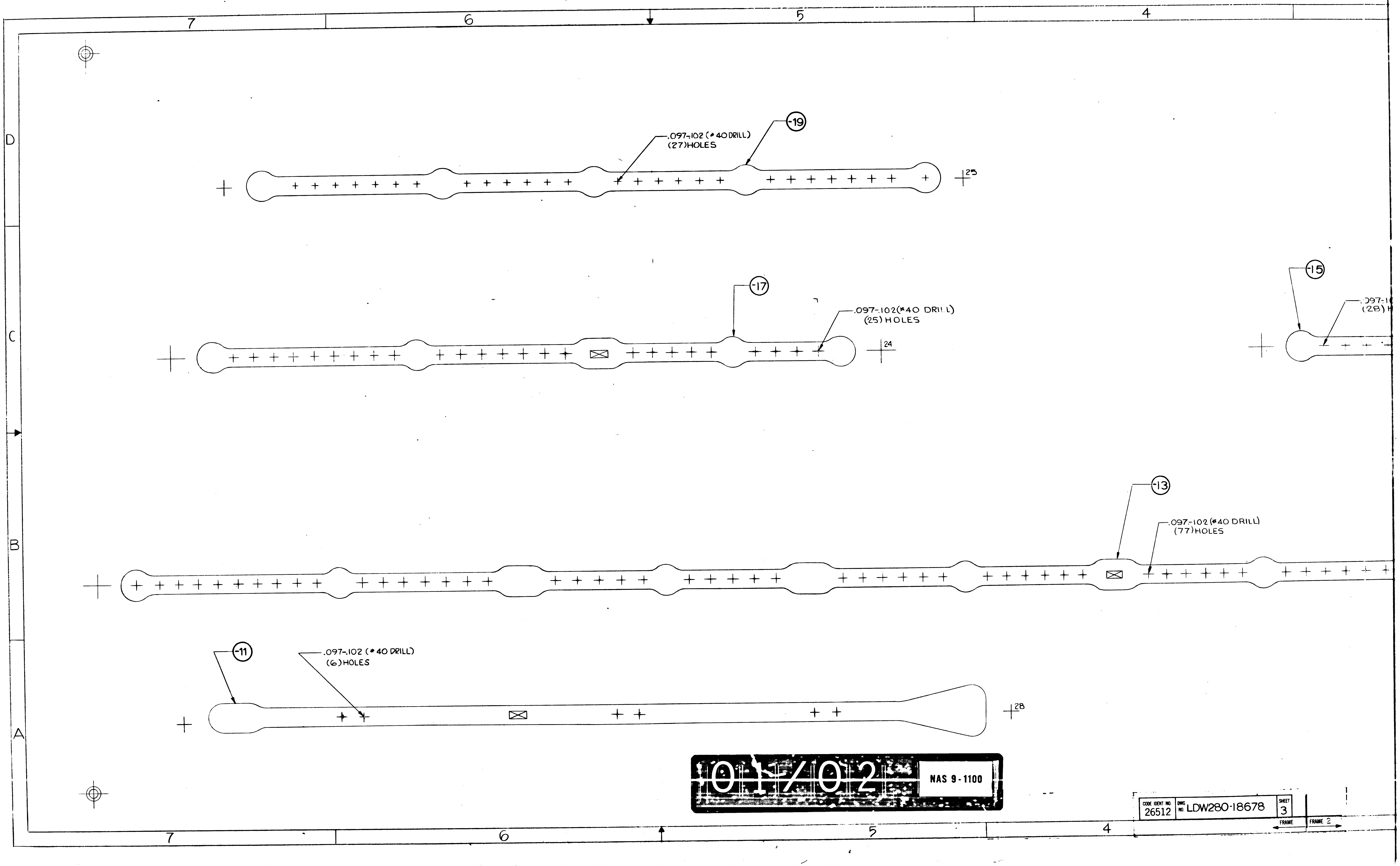
①

ENG 77.2 7-65

01 [illegible]

NAS 9-1100

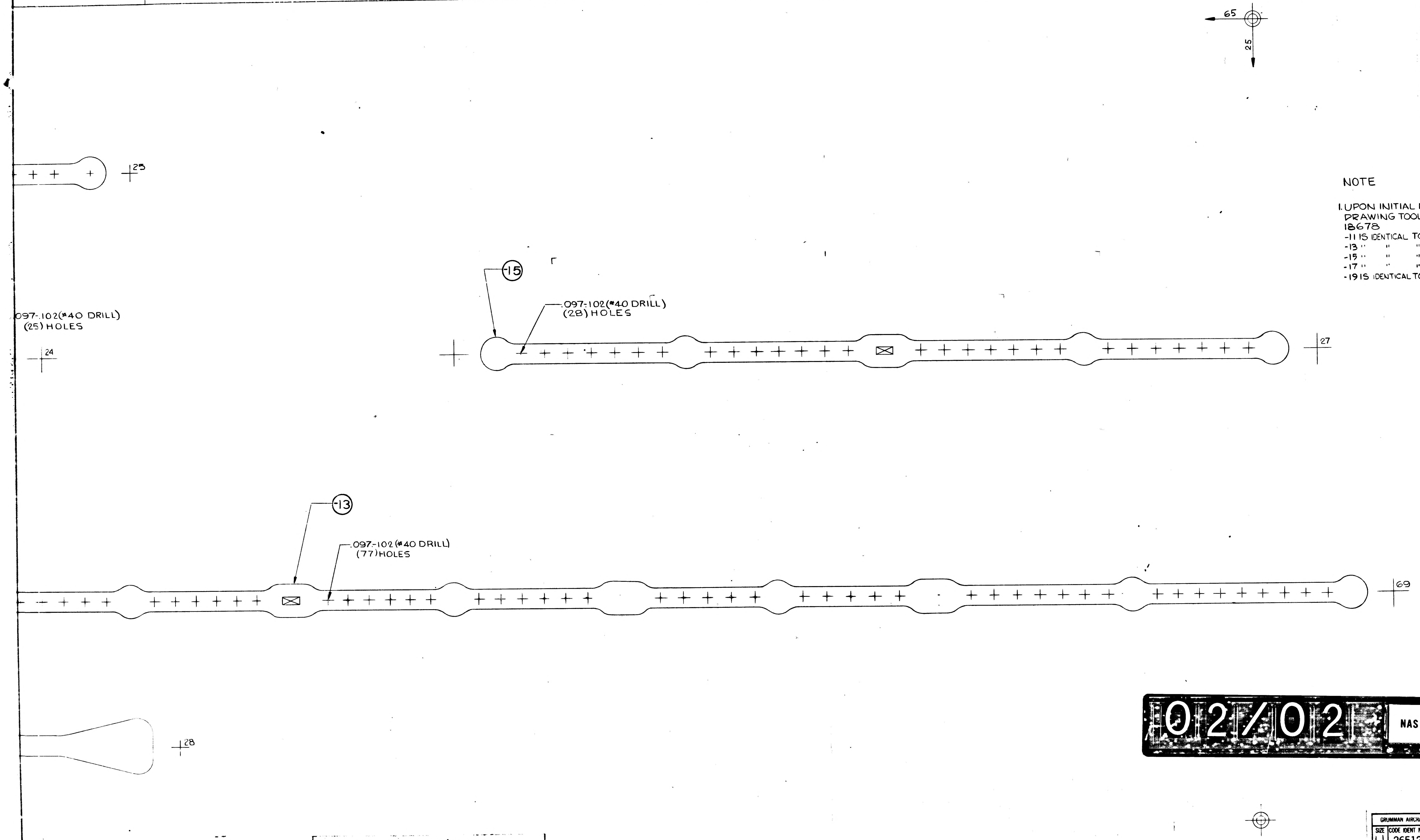
LDW280-18678 SH3


7
6
5
4
D
C
B
A
-19
.097-.102 (#40 DRILL)
(27)HOLES
25
-17
.097-.102(#40 DRILL)
(25) HOLES
24
-15
.097-1
(28)
-13
.097-.102 (#40 DRILL)
(77)HOLES
-11
.097-.102 (#40 DRILL)
(6)HOLES
28

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18678	3

FRAME 2



4 3 2 1

ENG 771.2 4-67

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 30 X 78
PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X 88 = 18.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 5 SQ FT
PRINT TRIM LINE

NOTE

1. UPON INITIAL RELEASE OF THIS DRAWING TOOLING FOR LDW280-18678
-11 IS IDENTICAL TO LDW280-66510-117
-13 " " " " " " -119
-15 " " " " " " -121
-17 " " " " " " -123
-19 IS IDENTICAL TO LDW280-66510-125

D C B A

LDW280-18678 A

LDW280-18678 A

02/02 NAS 9-1100

LDW280-18678 2H3

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18678	3

FRAME FRAME 2

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
H	26512	LDW280-18678	A
SCALE FULL		SHEET 3	

5 4 3 2

FOR PHOTO | REPRODUCTION

2FR K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18678 EO NO. A1
CONTROL INFO NO. LDW280B6582

CREATE -11, -13, -15, -17 & -19

-11, -13, -15, -17 & -19 ARE IDENTICAL TO LDW280-66510-117, -119, -121, -123 & -125 RESPECTIVELY EXCEPT MAKE -11, -13, -15, -17 & -19 FROM TITANIUM SH, .020 THICK, 6AL-4V STA, MIL-T-9046

IN M/B,
FOR -11, N/A LDW280-66510, LFM-200 LM-5(35), LM-6(36) THRU LM-15(45) 1 EA
FOR -13, 2 EA
FOR -15, 8 EA
FOR -17, 4 EA
FOR -19, N/A LDW280-66510, LFM 200 LM-5(35), LM-6(36) THRU LM-15(45) 2 EA

* DWG NOT MADE

LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR LDW280-66510-117, -119, -121, -123 & -125

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	V	LCD 2965 PKG 2 CCA1235	(5)

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS LM-5

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE

R GAEC EO RELEASE: JK 12/18 12/17

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY					NM				
DATE	12/17	12/17		12/17/68	12-17-68		12/17/68	12-17-68	
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS - D/S - LOWER THERMAL SHIELD	LDW280-18678	A1

CDR 12-18-68
ISSUED BY D. SHAPIRO/P. THORJUSEN X 86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18678		EO NO. A3	
CONTROL INFO NO. LDW280B6640			

FOR -19 (2 REQD/MOD) REMOVE EFF. LFM 200 LM-5 (35) & LM-6 (36) THRU LM-15 (45)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD296- CCA1235 (PKG 2)

REASON FOR EO: TO FACILITATE INSTALLATION OF BLANKET. LM-5 ECS.

DESCRIPTION OF EO: REMOVED -19 (2 REQD/MOD)

GAEC EO RELEASE: VK 12/30/68 (5)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5 (35)	
		LM-6 (36) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY		AB						
DATE	12/23/68	12/23/68		12/23/68	12/23/68		12/23/68	1/4/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS D/S LOWER THERMAL SHIELD	LDW280-18678	A3

CDR 122368

ISSUED BY V.A. CHRISTINA/ P. THORJUSEN SECTION VDI x1724 GROUP NO. 335 PL 25

01 NAS 9-1100-

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18678
EO NO. A4
CONTROL INFO NO. LDW280B6723

THIS E.O. CANCELS E.O. A2 & E.O. A3

LFM

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 2965, PKG #2, PG #18 CCA 1235 ECP(H053) (5)	

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS LMC R.F. 1/25/69

DESCRIPTION OF EO: REF E.O. A2 & A3

CANCELED E.O. A2 & A3

EO RELEASE: 1/25 SK 1/27/69

MODEL	EFFECTIVITY	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	EI LFM200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	1/25/69			1-25-69	1/25/67		1/25/69	1-27-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS-D/S-LWR THRML SHLD	LDW280-18678	A4

1-25-69
ISSUED BY D.SHAPIRO/P.THORJUSEN Y-87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 L
EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-18671 ✓	A3	SEE DWG
-18676 ✓	B1	↑
-18677 ✓	B1	
-18678 ✓	B1	
-18679	B1	
-18680	B3	
-18681	B2	
-18684	B1	
-18685	B1	↓
LDW280 -18686	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	
APPROVED BY				PSt				
DATE	4/8/69			4-2-69	4/5/69		4/9/69	4/16/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
ED NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1568
CONTROL INFO NO. LDW 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
✓ 678		B2
679		B2
680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; SK 8/18/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	APPROVED BY	PBt				M		
				DATE	7-29-69			7/29/69	8-2-69		8/16/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG92 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * , N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: (E) K 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	-	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1735

CDR110369

ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1847
CONTROL INFO NO. LDW280B981

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQ'MTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↕	↕	A8
✓ -18676-11,-13,-15,-17,-19			B4
✓ -18677-11,-13,-15,-17,-19			B4
✓ -18678-11,-13,-15,-17,-19			B4
-18679-11,-13,-15,-17,-19			B4
-18680-11,-13,-15,-17,-19			B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF. LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	RSF				NM				
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18679 A

PART NO. LDW280-18679-17&-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15 (45)	4 EA
LM		LM-14 (44)	4 EA
LM		LM-13 (43)	4 EA
LM		LM-12 (42)	4 EA
LM		LM-11 (41)	4 EA
LM		LM-10 (40)	4 EA
LM		LM-9 (39)	4 EA
LM		LM-8 (38)	4 EA
LM		LM-7 (37)	4 EA
LM		LM-6 (36)	4 EA
LFM 200	LDW280-66510	LM-5 (35)	4 EA

PART NO. LDW280-18679-13&-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15 (45)	8 EA
LM		LM-14 (44)	8 EA
LM		LM-13 (43)	8 EA
LM		LM-12 (42)	8 EA
LM		LM-11 (41)	8 EA
LM		LM-10 (40)	8 EA
LM		LM-9 (39)	8 EA
LM		LM-8 (38)	8 EA
LM		LM-7 (37)	8 EA
LM		LM-6 (36)	8 EA
LFM 200	LDW280-66510	LM-5 (35)	8 EA

PART NO. LDW280-18679-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15 (45)	2
LM		LM-14 (44)	2
LM		LM-13 (43)	2
LM		LM-12 (42)	2
LM		LM-11 (41)	2
LM		LM-10 (40)	2
LM		LM-9 (39)	2
LM		LM-8 (38)	2
LM		LM-7 (37)	2
LM		LM-6 (36)	2
LFM 200	LDW280-66510	LM-5 (35)	2

WORK PKG FUNCTION NO. 110 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-1A 3/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965 CCA 1235

ECP H053

CONTRACT NO. NAS9-1100

DRAWN BY	D. SHAPIRO		RELIABILITY	
LAYOUT BY	D. SHAPIRO		THERMO	M.U. 12-17-68
CHECKED BY	L Oches	8-5-69		
GR. LEADER	P.S.T.	12-17-68		
VEH DES INT	J.A.P.	12-17-68		
STRUCTURES	N.M.	12-17-68	PROJ ENGR	J.A.P. 12-17-68
STRUCTURES			REL GROUP	L.M. 12-17-68
WEIGHTS				

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAPS -
DESCENT STAGE ~ LOWER THERMAL SHIELD

SIZE B CODE IDENT NO. 26512 LDW280-18679 A

SCALE NONE SHEET 1.00 OF 4

NG 77.1 12-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1,1.10,2,3		LFM 200					EO A1 ~ INITIAL DWG RELEASE	LM-5 THRU LM-15			LUNDSTEN 3-3-69		
	2	1,1.10,2,3							INC EO A2						
	3	1,1.10,2,3							INC EO A3						
	4								INC EO A4						
	5	1,1.10						Ⓟ	INC EO A5						

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO			
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18679	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18679-19	E	STRAP	TITANIUM SH	MIL-T-9046. TYPE III, COMP C COND (STA)	6AL-4V	.020x2 1/8x9 1/8	NONE	NONE	
		-17	E	↕	↕	↕	↕	.020x 1 1/2x 7 5/8	↕	↕	
		-15	↕	↕	↕	↕	↕	.020x1 1/2 x9 5/8	↕	↕	
		-13	↕	↕	↕	↕	↕	.020x 1 3/8x17 5/8	↕	↕	
		LDW280-18679-11	E	STRAP	TITANIUM SH	MIL-T-9046, TYPE III COMP C COND (STA)	6AL-4V	.020x 1 3/8 x 12	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18679
A
SCALE NONE
SHEET 2.00

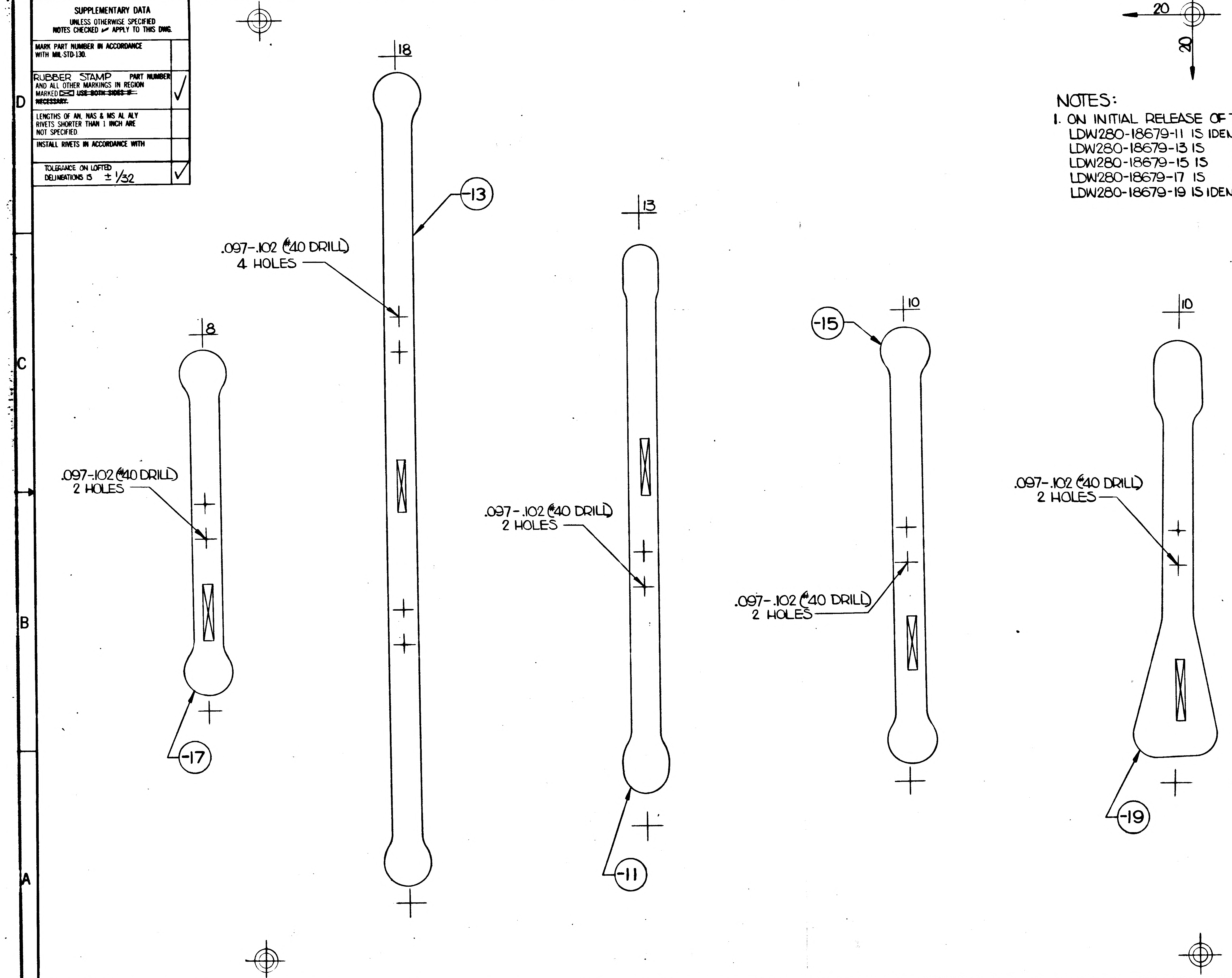
ENG 77.2 7-65

01

NAS 9-1100

LDW280-18679A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



20
20
18
-13
.097-.102 (#40 DRILL)
4 HOLES
8
.097-.102 (#40 DRILL)
2 HOLES
-17
13
.097-.102 (#40 DRILL)
2 HOLES
-11
10
-15
.097-.102 (#40 DRILL)
2 HOLES
10
.097-.102 (#40 DRILL)
2 HOLES
-19

NOTES:

1. ON INITIAL RELEASE OF THIS DWG TOOLING FOR:
LDW280-18679-11 IS IDENTICAL TO LDW280-66510-127,
LDW280-18679-13 IS ↕ TO LDW280-66510-129,
LDW280-18679-15 IS TO LDW280-66510-131,
LDW280-18679-17 IS TO LDW280-66510-133,
LDW280-18679-19 IS IDENTICAL TO LDW280-66510-135.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18679	A
SCALE FULL		SHEET 3.00	

ENG 73.3 REV. 5-67

FOR PHOTO REPRODUCTION

LDW280-18679A

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18679
EO NO. A1
CONTROL INFO NO. LDW280B6583

CREATE -11, -13, -15, -17 & -19

-11, -13, -15, -17 & -19 ARE IDENTICAL TO LDW280-66510-127, -129, -131, -133 & -135 RESPECTIVELY EXCEPT MAKE -11, -13, -15, -17 & -19 FROM TITANIUM SH., .020 THICK, 6AL-4V STA, MIL-T-9046

IN M/B,
FOR-11, N/A LDW280-66510, LFM200 LM-5(35), LM-6(36) THRU LM-15(45) 2 EA
FOR-13, 1 EA
FOR-15, 1 EA
FOR-17, 1 EA
FOR-19, N/A LDW280-66510, LFM200 LM-5(35), LM-6(36) THRU LM-15(45) 1 EA

* DWG NOT MADE

LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR LDW280-66510-127, -129, -131, -133 & -135

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2965 PKG 2 CCA1235 (5)

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS LM-5

DESCRIPTION OF EO: E.O. A1 INITIAL DRAWING RELEASE PARTS MADE PER E.O

GAEC EO RELEASE: JK 12/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG * | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				NM			
DATE	12/17	12/17	12/17/68	12-17-68		12/17/68	12-17-68

PRIORITY: C
DRAWING TITLE: STRAPS - D/S - LOWER THERMAL SHIELD
DRAWING NO.: LDW280-18679
EO NO.: A1

CDR 12-18-68
ISSUED BY D. SHAPIRO/P. THOR-JUSEN x 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18679		EO NO. A3
CONTROL INFO NO. LDW 280B 6641		

FOR -11 (2 REQD/MOD) REMOVE EFF. LFM 200 LM-5 (35)
LM-6 (36) THRU LM-15 (45)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 CCA1235 (PKG 2) ⑤

REASON FOR EO: TO FACILITATE INSTALLATION OF BLANKET LM-5 RCS.

DESCRIPTION OF EO: REMOVED -11 (2 REQD/MOD)

GAEC EO RELEASE: JK 12/30/68

MODEL	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 200	LM-5 (35)	
		LM-6 (36) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY							
DATE	12/23/68	12/23/68		12/23/68	[illegible]		12/23/68
	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS - D/S - LOWER THERMAL SHIELD	LDW280-18679	A3

CDR122368
ISSUED BY V.A. CHRISTINA/ P. THORJUSEN SECTION VDI x1724 GROUP NO. ______ PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-68

ENGINEERING ORDER

DWG. NO. LDW280-18679 EO NO. A4

CONTROL INFO NO. LDW280B6724

THIS E.O. CANCELS E.O.'S A2 & A3

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2965, PKG #2, PKG #18 CCA1235 ECP(H053) (5)

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS LMC R.E. 1/25/69

DESCRIPTION OF EO: REF E.O'S A2 & A3 CANCELED E.O.'S A2 & A3

GAEC EO RELEASE: 1/25 1/27/9

MODEL	EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	1/25/69	1/29/69		1-25-69	1/25/69		1/25/69	1-27-69
	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: STRAPS-D/S-LWR THRML SHLD

DRAWING NO.: LDW280-18679

EO NO.: A4

1-25-69

ISSUED BY D.SHAPIRO/P.THORTJSEN X-87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 1345
CONTROL INFO DW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680		B3	
-18681		B2	
-18684		B1	
-18685		B1	
LDW280-18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				PST				
DATE	4/1/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY C | DRAWING TITLE SEE DWG | DRAWING NO. LEO 280 | EO NO. 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDEP

[redacted] LEO 280
EO NO. 1568
CONTROL INFO NO. LDW280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
✓ 678		B2
✓ 679		B2
680		B4
681		B3
LDW280-18684	SEE DWG	B2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; SK 8/18/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY	P8t				N		
				DATE	7-29-69			7/29/69	8-2-69		8/2/69 8/16/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG ~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,-13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PK692	(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR *, N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: K 10/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY									
DATE	-	10/21/69		10 20 69	10/[illegible]		10/20/69	10/23/6[illegible]
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1735

CDR 110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1847

CONTROL INFO NO. LDW280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↑	↑	A8
✓ -18676-11,-13,-15,-17,-19			B4
✓ -18677-11,-13,-15,-17,-19			B4
✓ -18678-11,-13,-15,-17,-19			B4
✓ -18679-11,-13,-15,-17,-19			B4
↓ -18680-11,-13,-15,-17,-19	↓	↓	B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	RBT							
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO.: LEO 280

EO NO. 1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18680 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(41)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LM-9(39)	1 EA
		LM-8(38)	1 EA
		LM-7(37)	1 EA
LM		LM-6(36)	1 EA
LFM 200	LDW280-66510	LM-5(35)	1 EA

PART NO. LDW280-18680-17 & -19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW28C-66510	LM-15(45)	2
		LM-14 (44)	2
		LM-13(43)	2
		LM-12 (42)	2
		LM-11 (41)	2
		LM-10(40)	2
		LM-9 (39)	2
		LM-8(38)	2
		LM-7 (37)	2
LM		LM-6(36)	2
LFM 200	LDW 280-66510	LM-5 (35)	2

PART NO. LDW280-18680-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	4EA
		LM-14 (44)	4EA
		LM-13(43)	4 EA
		LM-12 (42)	4EA
		LM-11 (41)	4 EA
		LM-10(40)	4EA
		LM-9 (39)	4 EA
		LM-8 (38)	4EA
		LM-7(37)	4EA
LM		LM-6 (36)	4 EA
LFM 200	LDW 280-66510	LM-5 (35)	4 EA

PART NO. LDW280-18680-11 & -15

WORK PKG FUNCTION NO.110 (ↄ)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 215 | JK(001) | WE-11A-2/11/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2965

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	D.SHAPIRO	RELIABILITY	
LAYOUT BY	D.SHAPIRO	THERMO	MM 12-17-68
CHECKED BY	J Bell 1/21/69		
GR LEADER	PST 12-17-68		
VEH DES INT	JAP 12-17-68		
STRUCTURES	NM 12-17-68	PROJ ENGR	JAP 12-17-68
STRUCTURES		REL GROUP	LM 12-17-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAPS
DESCENT STAGE LOWER
THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18680 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10 1.00 2.00 3.00		LFM200		✓			EO A1 INITIAL DRAWING RELEASE	LM-5 THRU LM-15	NOT	REQD	A. LITVINOFF 1-15-69	☒	☒
	2	1.10 1.00 2.00 300		LFM200		✓			INC EO A2 JB						
	3	1.00 2.00 3.00		LFM 200		✓			INC EO A3	LM-5 THRU LM-15			R. PRIZZI 1-31-69	☒	☒
	4	1.10, 3.00		LFM 200		✓		LCD 2965 CCA-1235 Ⓔ	REF EO A1: ADDED NOTE 1.					EM 2/17/69	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A	2-11-69	2/12/69		NM 2/14/69			T. Nelson 2/14/69 JB 2/14				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18680 | A

SCALE NONE | SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18680-19	E	STRAP	TITANIUM SH	MIL-T-9046 TYPE III, COMP C	6AL-4V STA	.020 2× 27 7/16	NONE	NONE	3D
		-17	↕	↕	↕	↕	↕	.020×2× 27 1/2	↕	↕	3A
		-15	↕	↕	↕	↕	↕	.020 2×25 1/2	↕	↕	4C
		-13	↕	↕	↕	↕	↕	.020 2×27 3/4	↕	↕	4C
		LDW280-18680-11	E	STRAP	TITANIUM SH	MIL-T-9046 TYPE III, COMP C	6AL-4V STA	.020 1 1/4 X 67 5/8	NONE	NONE	4B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18680	A

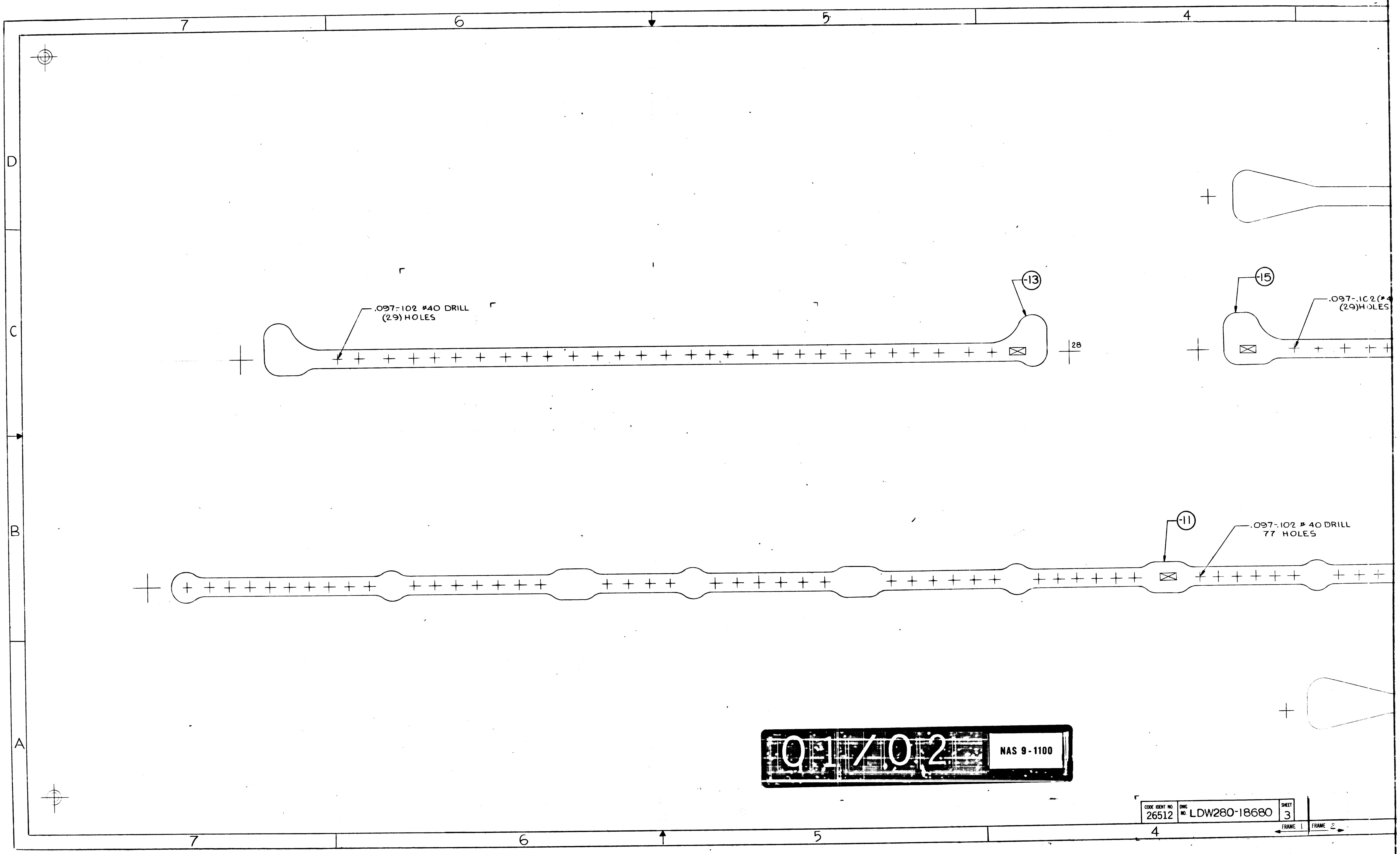
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

NAS 9-1100

LDW280-18680 2H3


7
6
5
4
D
C
B
A
-13
.097-102 #40 DRILL
(29) HOLES
28
-15
.097-.102 (#4
(29) HOLES
-11
.097-.102 # 40 DRILL
77 HOLES

01/02 NAS 9-1100

CODE IDENT NO. 26512
DWG NO. LDW280-18680
SHEET 3

FRAME 1 | FRAME 2

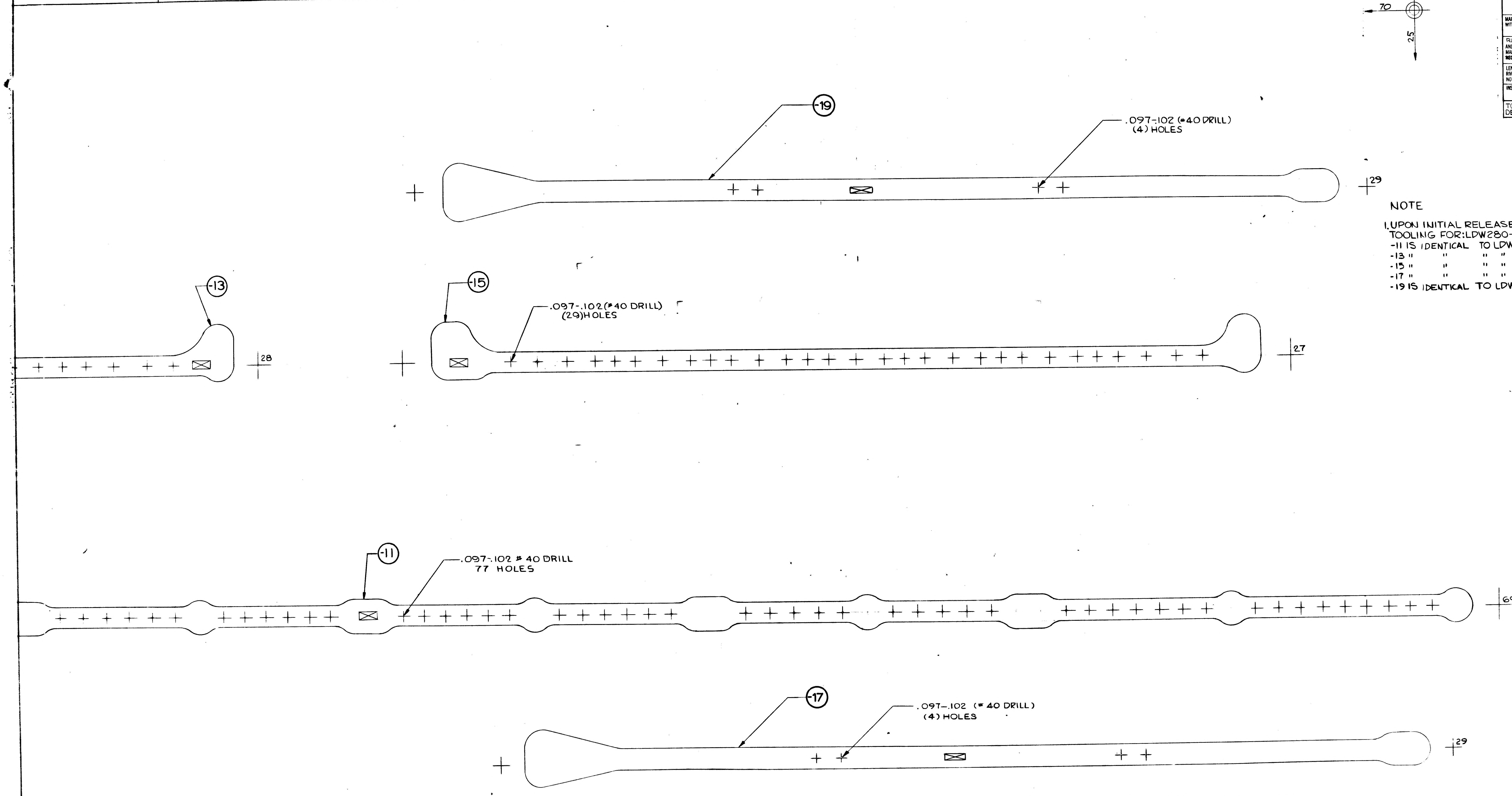
overlays & TRAM O.K. T.S 1-15-69

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 28X77

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X 87) = 18.1 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 4.5 SQ FT
PRINT TRIM LINE


4
3
2
1
70
25
-19
.097-.102 (#40 DRILL)
(4) HOLES
29
-13
28
-15
.097-.102 (#40 DRILL)
(29) HOLES
27
-11
.097-.102 #40 DRILL
77 HOLES
69
-17
.097-.102 (#40 DRILL)
(4) HOLES
29
D
C
B
A

NOTE

1. UPON INITIAL RELEASE OF THIS DRAWING TOOLING FOR: LDW280-18680
-11 IS IDENTICAL TO LDW280-66510-137
-13 " " " " " " -139
-15 " " " " " " -141
-17 " " " " " " -143
-19 IS IDENTICAL TO LDW280-66510-145

LDW280-18680 A

LDW280-18680 A

02/012 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18680	3

FRAME 1 FRAME 2

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
H	26512	LDW280-18680	A
SCALE FULL		SHEET 3.0C	

FOR PHOTO REPRODUCTION

2FR K2

LDW280-18680 2H3

ENG 38.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18680		EO NO. B1
CONTROL INFO NO. LDW280B7219		

IN MB ON-15, ADD N/A LSK280-11267 EFF: DVT(70) 4 REQ'D

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2965 PKG 2 CCA 1235 ECP H053 (5)

REASON FOR EO: TO CONFORM TO LM-5

DESCRIPTION OF EO: IN MB 0...-15, ADDED N/A LSK280-11267 EFF: DVT(70) 4 REQ'D

GAEC EO RELEASE: JK 2/21/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY	[illegible]			RPF	W/[illegible]		[illegible]	[illegible]
DATE	2/20/69			2/20/69	2/20/69		2/20/69	2-21-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS-D/S-LWR THRML SHLD	LDW280-18680	B1

CDR022469

ISSUED BY D. SHAPIRO/P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18680

EO NO. B2

CONTROL INFO NO. LDW280B7309

REF. E.O. B1

IN MB ON -11, ADD N/A LSK280-11267 EFF: DVT(70) 4 REQ'D

(WAS)

IN MB ON -15, ADD N/A LSK 280-11267 EFF: DVT(70) 4 REQ'D

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 PKG2 CCA 1235	⑤

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CONFORM TO LM-5 OK LM 5 RCS.	REF. E.O. B1 IN MB ON-11, ADDED N/A LSK280-11267 EFF: DVT(70) 4 REQ'D (WAS) IN MB ON-15, ADDED N/A LSK280-11267 EFF: DVT(70) 4 REQ'D	Ⓡ 3/5/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		MAR					JaP	
DATE	3/4/69	3/4/69		3-4-69	3/4/69		3/4/69	3-5-69
VD I	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS-D/S-LOWER thermal Shield	LDW280-18680	B2

CD120 30469

ISSUED BY D SHAPIRO/P. Thorjusen X 87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 92.1 REV 3-69

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680	✓	B3	
-18681		B2	
-18684		B1	
-18685		B1	↓
LDW280-18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3587 PKG 55 PG. 7	CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]			PGT	W/H		[illegible]	[illegible]
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69

PRIORITY: C | DRAWING TITLE: SEE DWG | DRAWING NO. LEO 280 | EO NO. 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] NO. LEO 280
EO NO. 1568
CONTROL INFO NO. LDW [illegible]80B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
✓ 678		B2
✓ 679		B2
✓ 680		B4
681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69
SK 8/18/69

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LTA-11 ([redacted]) (23)		✓		NOT REQ'D	

APPROVED BY	P8t			[illegible]	M		[illegible]	[illegible]
DATE	7-29-69			7/29/69	8-2-69		8/?/69	8/16/69
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG92

(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * , N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY									
DATE	-	10/21/69		10-20-69			10/20/69	10/23/69	
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO. LE0280
EO NO. 1735

CDR110369
ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1847

CONTROL INFO NO. LDW280B 9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. *	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↕	↕	A8
✓ -18676-11,-13,-15,-17,-19	↕	↕	B4
✓ -18677-11,-13,-15,-17,-19	↕	↕	B4
✓ -18678-11,-13,-15,-17,-19	↕	↕	B4
✓ -18679-11,-13,-15,-17,-19	↕	↕	B4
✓ -18680-11,-13,-15,-17,-19	↕	↕	B6
LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 92 (5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS

DESCRIPTION OF EO: IN M/B FOR * REMOVED EFF LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PSF				NM			
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO. LEO 280

EO NO. 1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO. 1911

CONTROL INFO NO. LDW280C1146

FOR -* IN MOD/BLK ADD LM-10(40) THRU LM-13(43) EFF.

DWG NO.	DASH* NO.	TITLE	N/A	QTY/MOD	CHANGE NO.
✓ LDW280-18677	-19	SEE DWG	LDW280-60511	3	B5
✓ -18680	-11	"	LDW280-60511	2	B7
-18681	-11	"	LDW280-60511	2	B6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 92

REASON FOR EO: PARTS INCORRECTLY REMOVED FROM LM 10 THRU LM-13 & TO AGREE WITH USAGE ON NHA

DESCRIPTION OF EO: FOR -* ADDED LM-10(40) THRU LM-13(43) EFF

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

APPROVED BY	RST				NM		RST	
DATE	11-17-70			11/17/70	11/17/70		11-18-70	11-18-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CCP~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1911

CCR 11/20/70

ISSUED BY G.BARNES | G.HANSMANN X87222 SECTION VDI GROUP NO 0335 PL 025

01

NAS 9-1100

LDW280-18681 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66510	LM-15(45)	2 EA
		LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
		LM-11 (41)	2 EA
		LM-10 (40)	2 EA
		LM-9 (39)	2 EA
		LM-8 (38)	2 EA
		LM-7 (37)	2 EA
LM		LM-6 (36)	2 EA
LFM 200	LDW280-66510	LM-5 (35)	2 EA

PART NO. LDW280-18681-13, -15, -11, -17 & -19

GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (6

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) ME-K 2/3/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ± .010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE V
LCD 2965 CCA1235

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	D. SHAPIRO	RELIABILITY	
LAYOUT BY	D. SHAPIRO	THERMO	M.U. 12-17-68
CHECKED BY			
GR LEADER	PST 12-17-68		
VEH DES INT			
STRUCTURES	NM 12-17-68	PROJ ENGR	JAP 12-17-68
STRUCTURES		REL GROUP	L.M. 12-17-68
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAPS
DESCENT STAGE LOWER
THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-18681 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10 1.00 2.00 3.00		LFM 200					EO A1 INIT'L DRAWING RELEASE	LM-5 THRU LM-15			A.LITVINOFF 1-20-69		
	2	1.10 1.00		LFM 200					INC EO A2						
	3	1.00 2.00 3.00		LFM 200					INC EO A3 1-30-69				R.PRIZZI 1-29-69		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18681	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18681-19	E	STRAP	TITANIUM SH	MIL-T-9046	6AL-4V STA	.020 x 1 x 1 5/8	NONE	NONE	
		-17						.020 x 1 1/8 x 14 1/2			
		-15						.020 x 1 1/8 x 9 3/8			
		-11						.020 x 1 7/8 x 17 3/4			
		LDW280-18681-13	E	STRAP	TITANIUM SH	MIL-T-9046	6AL-4V STA	.020 x 1 1/8 x 23 1/4	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18681	A

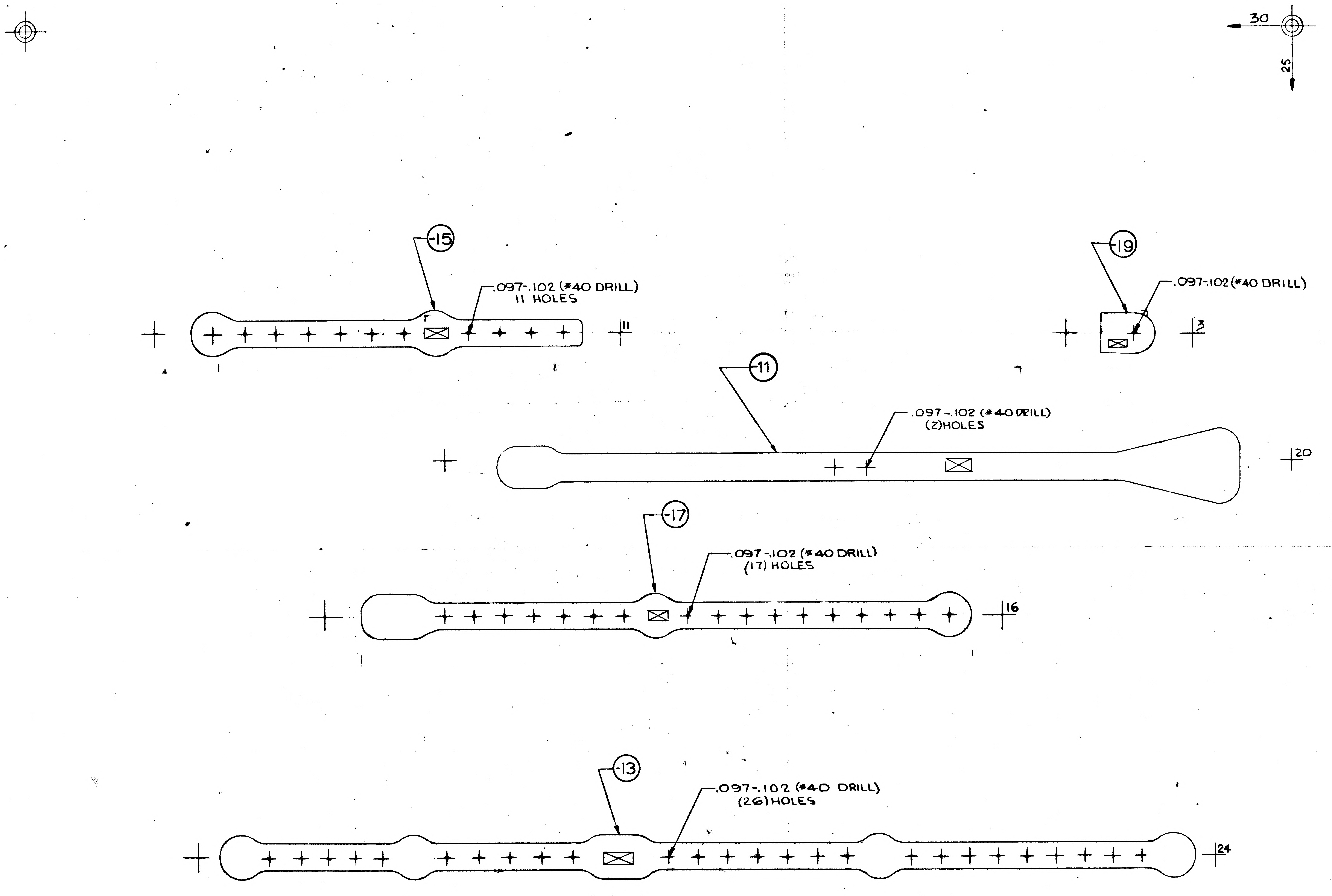
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18681 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-18681	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

01

NAS 9-1100

RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280 -18681
EO NO. B1
CONTROL INFO NO. LM5-30105

REVISE QTY. REQ'D FOR -11

1 REQD S/B 2 REQD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2965 CCA 1235

REASON FOR EO: INCORRECT QTY CALLOUT

DESCRIPTION OF EO: REVISED QTY REQD FOR -11 : 2 REQD WAS 1 REQD

GAEC EO RELEASE: (R) (5) J/C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM5(35)	
		LM6(36) THRU	
		15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	2/12/69			2/1/69	1-29-69	1-29-69	2/12/69	1-30-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

Signatures: RH, CR

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAPS D/S-LOWER THERMAL SHIELD	LDW280-18681	B1

ISSUED BY LIAISON D. RAGAS SECTION VD1 GROUP NO. 280 PL 5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680	✓	B3	
-18681	✓	B2	
-18684		B1	
-18685		B1	↓
LDW280-18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				P8J				
DATE	4/1/69			4-2-69	4/5/69		4/9/69	4/16/69
	VD1							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1568
CONTROL INFO NO. LDW 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 ~~(40)~~ [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
✓ 678		B2
✓ 679		B2
✓ 680		B4
✓ 681		B3
LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69
SK 8/18/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted] (23))	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	PSt				N				
DATE	7-29-69			7/29/69	8-2-69		8/1/69	8/16/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,-13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG92 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * , N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

APPROVED BY									
DATE	-	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1735

CDR110369
ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1847

CONTROL INFO NO. LDW280B9812

IN M/B FOR DASH NUMBERS LISTED BELOW REMOVE EFFECT. LM 10(40) THRU LM 14(44) REQMTS.

DRAWING NO. ✱	N/A	DWG. TITLE	CHANGE LTR
✓ LDW280-18601-11,-13,-15, -18,-19	SEE DWG	SEE DWG.	A6
✓ -18638-1,-2,-3	↑	↑	A8
✓ -18676-11,-13,-15,-17,-19	│	│	B4
✓ -18677-11,-13,-15,-17,-19	│	│	B4
✓ -18678-11,-13,-15,-17,-19	│	│	B4
✓ -18679-11,-13,-15,-17,-19	│	│	B4
✓ -18680-11,-13,-15,-17,-19	↓	↓	B6
✓ LDW280-18681-11,-13,-15,-17,-19	SEE DWG	SEE DWG.	B5
LDW 280-18602-11,-13,-17,-19,-20,-21,-23	SEE DWG	SEE DWG.	A4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKC 92

(5)

REASON FOR EO: REDESIGN OF FIRE UNTIL TOUCHDOWN SHIELD TO ACCOMMODATE EXTENDED TANKS.

DESCRIPTION OF EO: IN M/B FOR ✱ REMOVED EFF. LM10(40) THRU LM14(44)

GAEC EO RELEASE: 3/18/70

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU	
		LM 14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: REWORK; ✓ SCRAP

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	RST				NM			
DATE	2-9-70			2/9/70	2/10/70		2/16/70	2-18-70

PRIORITY: C

DRAWING TITLE: SEE ABOVE

DRAWING NO.: LEO 280

EO NO. 1847

CDR 2/20/70

ISSUED BY P. ABRAMS (GUS HANSMANN) X86046 SECTION VD1 GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1911

CONTROL INFO NO. LDW 280C1146

FOR -* IN MOD/BLK ADD LM-10(40) THRU LM-13(43) EFF.

	DWG NO.	DASH* NO.	TITLE	N/A	QTY/MOD	CHANGE NO.
✓	LDW280-18677	-19	SEE DWG	LDW280-60511	3	B5
✓	-18680	-11	"	LDW280-60511	2	B7
✓	-18681	-11	"	LDW280-60511	2	B6

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 92

REASON FOR EO: PARTS INCORRECTLY REMOVED FROM LM 10 THRU LM-13 & TO AGREE WITH USAGE ON NHA

DESCRIPTION OF EO: FOR -* ADDED LM-10(40) THRU LM-13(43) EFF

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-13(43)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

APPROVED BY				NM				
DATE	11-17-70			11/17/70	11/17/70		11-18-70	11-18-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1911

CIR 11/20/70

ISSUED BY G. BARNES | G. HANSMANN x87222 SECTION VDI GROUP NO 0335 PL 025

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NAS 9-1100

LDW280-18682

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66532	QUAL TEST(72)	2
LM	↕	DVT(70)	2
LFM 268		LM-6(36)	8
LFM268	LDW280-66532	LM-5(35)	8
PART NO. LDW280-18682-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED
LAST DASH NO. USED -11

GRUMMAN REC INFO
PRIM NO. 207
VK(001) ME-16- 1/27/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ~
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3499

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (5)

DRAWN BY	J. BIANCHINO	WEIGHTS	
LAYOUT BY	H. ISRAEL	RELIABILITY	
CHECKED BY	J.D.COBB 1-14-69	THERMO	1-21-69
GP LEADER	1-20-69		
VEH DES INT	1/20/69		
STRUCTURE	NM 1/24/69	PROJ ENGR	J. Lusatere 1/25/69
STRUCTURE	1/24/69	REL GROUP	L. March 1-27-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE - PLUME
DEFLECTOR - CATENARY

SIZE B
CODE IDENT NO. 26512
LDW280-18682
SCALE NONE
SHEET 1.00 OF 3

CDR 1/24/69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18682-11	E	STRAP	TITANIUM SH	MIL-T-9046, TYPE III COMP C, COND STA	6AL-4V	.020 x 3/4 x 45 7/8	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18682

SCALE NONE SHEET 2.00

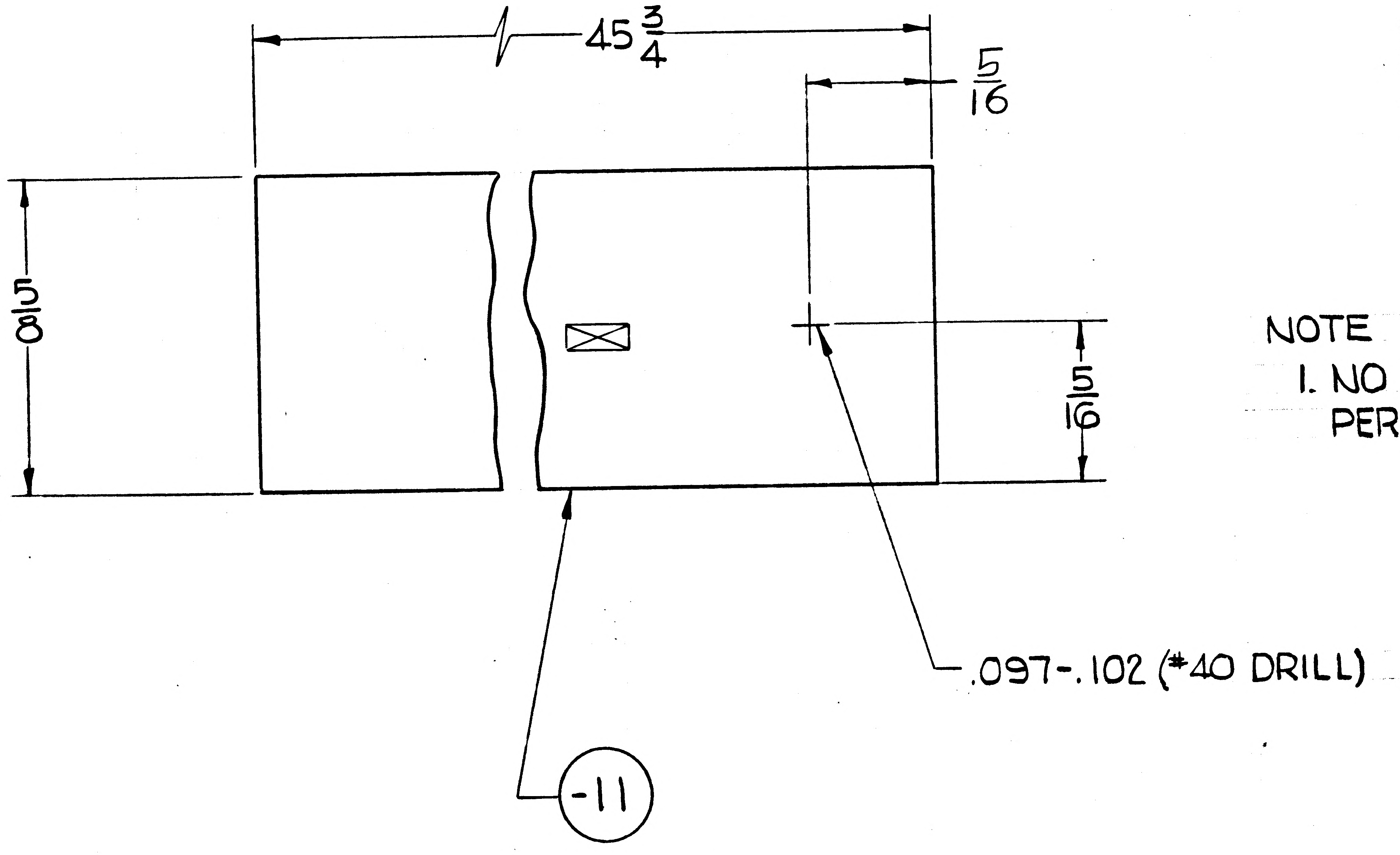
ENG 77.2 7-65

01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



NOTE
1. NO TOOLING HOLES PERMITTED IN PART.

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18682
SCALE NONE		SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1662
CONTROL INFO NO. LDW280 38852

ADD LM-7(37) LFM-268, LM-8(38) THRU LM-14(44) REQMTS TO THE DASH NO.'S OF THE FOLLOWING DWGS.
QTY & N/A TO REMAIN THE SAME AS LM-6(36)

DWG. NO.	DASH NO.*	CHG NO	TITLE
✓ LDW280-18682 ✓	-11	A1	STRAP-D/S-PLUME D.
-18640 ✓	-11,-13,-15,-17	A3	CHANNEL "
-18683 ✓	-11	A1	WASHER "
M18057 ✓	-13,-14	B2	ROD END "
M18059 ✓	-11-1, -13	A3	ROD END "
M18060 ✓	-11	A3	ROD END "
M18064 ✓	-11	A2	PLUG CTR OPP. "
M18065 ✓	-11-1	A2	OPP. CTR SUPT. FITG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3499G PKG 2 PG 6,7 (5)

REASON FOR EO: ADDITIONAL REQMTS

DESCRIPTION OF EO: FOR * ADDED LM-7(37) LFM 268, LM-8(38) THRU LM-14(44).

GAEC EO RELEASE: 9-8-69
JK 9/8/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-14(44)	
LM		LM-8(38)	THRU
LM	LFM1268	LM-7(37)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQ'D SCRAP

APPROVED BY					W/N			
DATE	9-6-69	9-8-69		9/6/69			9/6/69	9/8/69
	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1662

9/5/69
ISSUED BY R.P. OBERNDORFER, P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1704
CONTROL INFO. LDW280B8900

ON DASH Nos. ✱ OF THE FOLLOWING DWGS, REDUCE QTY REQD/VEHICLE AS NOTED.

DWG No.	DASH No. ✱	CHANGE No.	TITLE	QTY/VEH ■ IS	QTY/VEH ▲ WAS	
✓ LDW280-18682	-11	A2	SEE DWG	4	8	LM-10(40) THRU LM-14(40)
-18641	-11, -13, -15	A5		4 EA	8 EA	
-18643	-13	A5		2	4	
-66535	-1-1	A6		2	4	
-66532	-5-1	B5		2	4	
LDW280-18683	-11	A2		228	456	LM-10(40) THRU LM-14(44)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 96 (5)

REASON FOR EO: REMOVE EXISTING DEFLECTORS FROM QDS I & IV

DESCRIPTION OF EO: ON - ✱, QTY ■ REQD/VEH WAS ▲

GAEC EO RELEASE: 10-6-69; JK 10/7/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	10/2/69			10-2-69	10/3/69		10/3/69	10-6-69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1704

10/6/69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18682
EO NO. A3
CONTROL INFO. NO. LDW280B9758

IN F/D, M/B, & L/M

ADD -13 IDENT TO -11 EXCEPT L= 42 3/4
-13 EFF LM-10(40) THRU LM-14(44), N/A LDW280-66552
4 REQD/VEH; EFF QUAL TEST (72) N/A LDW280-66552,
2 REQD/VEH.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PK 96

REASON FOR EO: SHORTER SHIELD REQD FOR BD I & IV CLEARANCE

DESCRIPTION OF EO: ADDED -13

GAEC EO RELEASE: (5) CK 2/2/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-10(40) THRU	
		LM-14(44)	
LM		QUAL TEST (72)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	1-30-70			1/30/70	1/30/70		1-30-70	2/2/70
	UDI							

PRIORITY: C

DRAWING TITLE: STRAP~D/S~PLUME DEFLECTOR CATENARY

DRAWING NO. LDW280-18682

EO NO. A3

2-9-70
ISSUED BY G. BELEV ~ G. HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW28C-18683

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66532	QUALTEST(72)	114
LM	↕	DVT(70)	114
LFM 268		LM-6(36)	456
LFM 268	LDW280-66532	LM-5(35)	456

PART NO. LDW280-18683-11 | GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -11
GRUMMAN REL INFO
PRIM NO. 207
JK(001) ME-16 1/28/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3499
1-24-69

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. GARRAFFO
LAYOUT BY	G. BELEV
CHECKED BY	J. D. COBB 1/21/69
GP LEADER	Thompson 1-24-69
VEH DES INT	J. Pisatini 1/24
STRUCTURES	NM 1-27-69
STRUCTURES	JJH 1/27/69
WEIGHTS	

PROJ ENGR J. Pisatini 1/27/69
REL GROUP 1-28-69

(P) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WASHER
DESCENT STAGE~PLUME
DEFLECTOR~CATENARY STRAPS

SIZE B | CODE IDENT NO. 26512 | LDW280-18683
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18683-11	E	WASHER	CRES SH	MIL-S-5059	TYPE 301 ¼ HD	.032 x 1/2 x 1/2	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

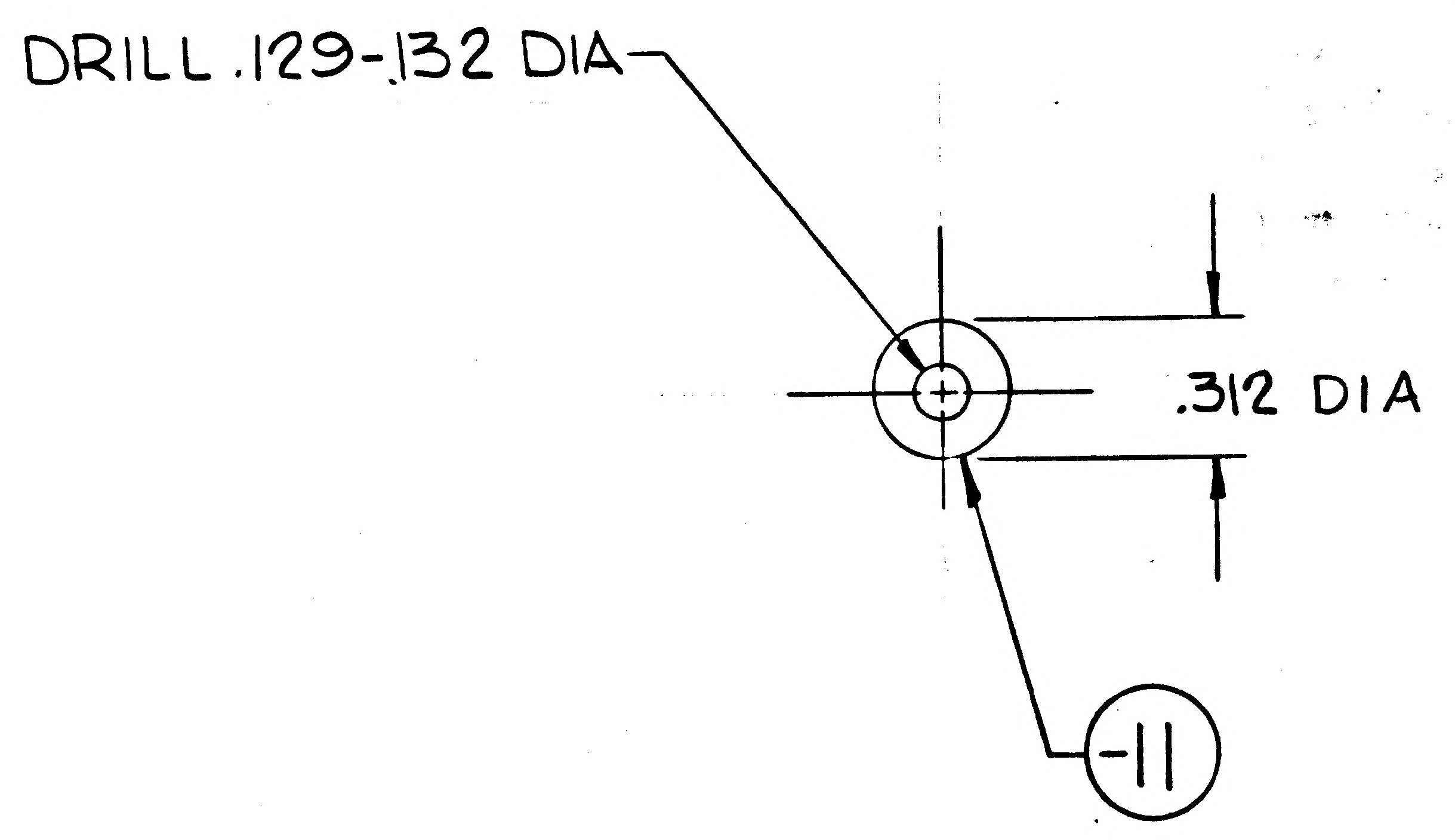
SIZE	CODE IDENT NO.	
B	26512	LDW280-18683

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


DRILL .129-.132 DIA
.312 DIA
-11

NOTES:

1. -11 MAY BE MADE FROM AN960C4.
2. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18683

SCALE 2/1		SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1662
CONTROL INFO NO. LDW280B8852

ADD LM-7(37) LFM-268, LM-8(38) THRU LM-14(44) REQMT'S TO THE DASH NO.'S OF THE FOLLOWING DWGS.
QTY & N/A TO REMAIN THE SAME AS LM-6(36)

DWG. NO.	DASH NO.*	CHG NO	TITLE
✓ LDW280-18682 ✓	-11	A1	STRAP-D/S-PLUME D.
✓ -18640 ✓	-11,-13,-15,-17	A3	CHANNEL "
✓ -18683 ✓	-11	A1	WASHER "
M18057 ✓	-13,-14	B2	ROD END "
M18059 ✓	-11-1, -13	A3	ROD END "
M18060 ✓	-11	A3	ROD END "
M18064 ✓	-11	A2	PLUG CTR OPP. "
M18065 ✓	-11-1	A2	OPP. CTR SUPT. FITG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LC.D 3499G PKG 2 PG 6,7 (5)

REASON FOR EO: ADDITIONAL REQMTS

DESCRIPTION OF EO: FOR * ADDED LM-7(37) LFM 268, LM-8(38) THRU LM-14(44).

GAEC EO RELEASE: 9-8-69; JK 9/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-14(44)	
LM		LM-8(38) THRU	
LM	LFM1268	LM-7(37)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK: NOT SCRAP: REQ'D

APPROVED BY	UDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		MP			WJN			
DATE	9-6-69	9-8-69		9/6/69	9/8/6-		9/8/69	9/8/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1662

9/5/69
ISSUED BY R.P. OBERENDORFER, P. THORJUSEN x37222 SECTION UDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1704
CONTROL INFO NO. LDW280B8900		

ON DASH Nos. * OF THE FOLLOWING DWGS, REDUCE QTY REQD/ VEHICLE AS NOTED.

DWG No.	DASH No. *	CHANGE No.	TITLE	QTY/VEH ■ IS	QTY/VEH ▲ WAS	
✓ LDW280-18682	-11	A2		4	8	LM-10 (40) THRU LM-14 (40)
✓ -18641	-11, -13, -15	A5		4 EA	8 EA	
✓ -18643	-13	A5		2	4	
✓ -66535	-1-1	A6	SEE DWG	2	4	
✓ -66532	-5-1	B5		2	4	
✓ LDW280-18683	-11	A2		228	456	LM-10 (40) THRU LM-14 (44)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 96 (5)

REASON FOR EO
REMOVE EXISTING DEFLECTORS FROM QDS I & IV

DESCRIPTION OF EO
ON - *, QTY ■ REQD/VEH WAS ▲

GAEC EO RELEASE 10-6-69 10/7/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			✓

APPROVED BY								
DATE	10/2/69			10-2-69	10/3/69		10/3/69	10-6-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1704

10/6/69
ISSUED BY J. LANG / P. THORJUSEN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1833
CONTROL INFO NO. LDW 280 B9747

FOR THE DRAWINGS* LISTED BELOW, ADD N/A LDW280-66552, EFF. LM-10(40) THRU LM-14(44), QUAL TEST(72) WITH THE NOTED QTY PER MODULE.

DRAWING NO.*	QUANTITY LM-10 - LM-14	 QUAL TEST (72)	TITLE	CHANGE LETTER
✓ LDW 280-18640-15, -17	2 EA.	1 EA.	SEE DWG.	A5
✓ LDW 280 M18078-11	4 EA.	2 EA.	↓	A5
✓ LDW 280 M18079-11	4 EA.	2 EA.	↓	A4
✓ LDW 280 M18064-11	2 EA.	1 EA.	↓	A3
✓ LDW 280 M18072-11	2 EA.	1 EA.	↓	A3
✓ LDW 280-18683-11	212 EA.	106 EA.	SEE DWG.	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PK 96 (5)

REASON FOR EO: ADDITIONAL REQUIREMENT FOR RCS PLUME DEFLECTOR

DESCRIPTION OF EO: FOR(*) ADDED LM-10(40) THRU LM-14(44) & Q.T.(72) N/A LDW280-66552.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
LM		LM-14 (44),	QUAL TEST (72)

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ. REWORK / SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	VDI							
DATE	2-3-70			2/4/70	2/4/70		2-4-70	2/6/70

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1833

2-9-70
ISSUED BY L. NICHOLAS / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18684 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66511 SEE NOTE #2	LM-15(45)	1EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
	SEE NOTE #2	LM-6(36)	
LM	LDW280-66511	LM-5(35)	1EA

PART NO. LDW280-18684-11,-13, -15,-17 & -19

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO "A"

PRIM NO. (K001) 207 ME-16A 4/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 2965, CCA1235

ECP H053

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	MONACO 1-25-69	RELIABILITY	
LAYOUT BY	MONACO 1-25-69		
CHECKED BY	O. Fass 4-16-69		
GP LEADER	PST 1-25-69		
VDI	JHS 1-25-69		
STRUCT	NM 1-27-69	PROJ ENGR	JAP 1-27-69
THERMO	ABM 1-27-69	REL GROUP	GROD 1-28-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR
DESCENT STAGE ~ FUEL FILL &
DRAIN-QUAD. III - X131.140

SIZE B | CODE IDENT NO. 26512 | LDW280-18684 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	100, 110, 200 & 300							EO A1 INITIAL DRAWING RELEASE D.J.	LM-5 THRU LM-15			SMALL 4-15-69		4-16-69

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	THERMO	WEIGHTS	RELIABILITY					
A											

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18684	A

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18684-19	E	STRAP	TITANIUM SH.	MIL-T-9046	6AL-4V STA	.020 X 3/4 X 6 3/4	NONE	NONE	
		-17	↑	↑	↑	↑	↑	.020 X 3/4 X 5 1/4	↑	↑	
		-15						.020 X 3/4 X 21			
		-13	↓	↓	↓	↓	↓	.020 X 3 1/8 X 26 1/2	↓	↓	
		LDW280-18684-11	E	STRAP	TITANIUM SH.	MIL-T-9046	6AL-4V STA	.020 X 3 X 26 1/2	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18684
A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01C

NAS 9-1100

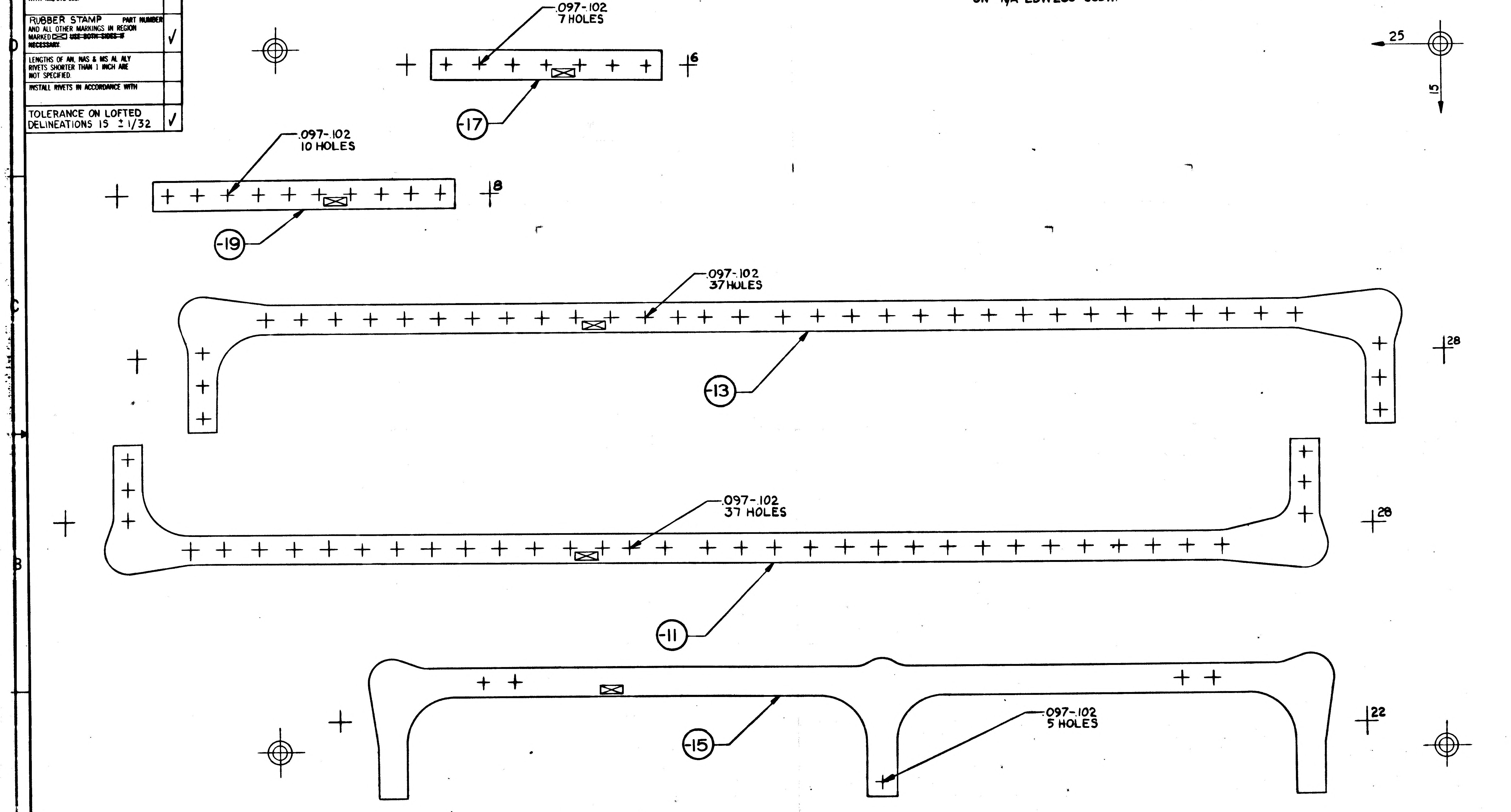
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. UPON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR: LDW280-18684-11,-13,-15,-17&-19 IS SIMILIAR TO LDW280-66511-15
2. -11,-13,-15,-17&-19 MAY BE USED IN PLACE OF LDW280-66511-15 ON N/A LDW280-66511.

OVERLAY

TRAM OK
A.S. 4-11-69


.097-.102
7 HOLES
6
-17
.097-.102
10 HOLES
8
-19
.097-.102
37 HOLES
-13
28
.097-.102
37 HOLES
28
-11
-15
.097-.102
5 HOLES
22
25
15

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18684	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

0152
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

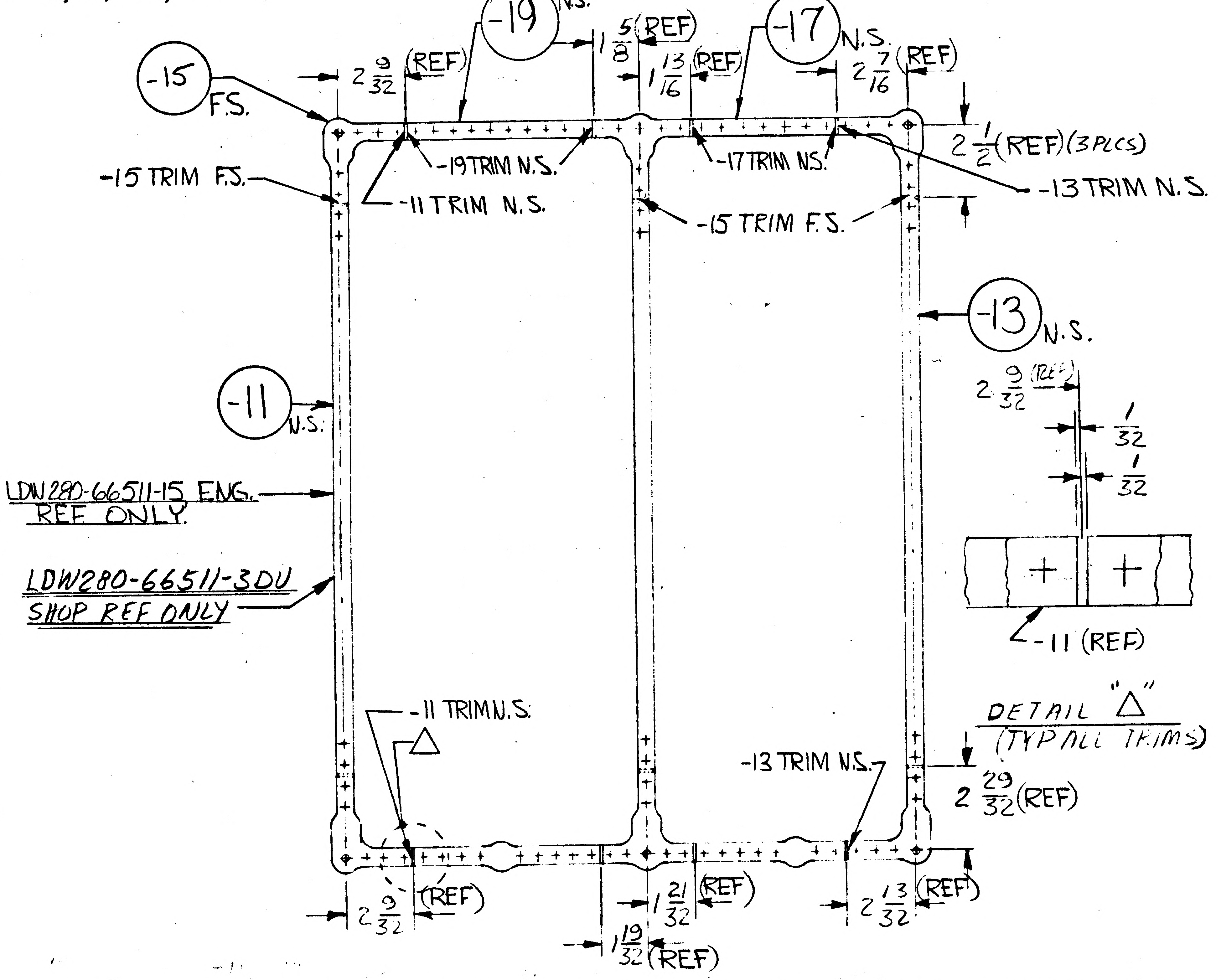
ENG 32.2 REV 3-65

DWG. NO. LDW280-18684	EO NO. A1
CONTROL INFO NO. LDW280B6895	

CREATE -11,-13,-15,-17 IDENTICAL TO LDW280-66511-15 EXCEPT AS SHOWN.
-11 -13 -15 -17 ARE MADE FROM TITANIUM SH., .020 THICK, 6AL-4V STA, MIL-T-9046, TYPE III COMP. C FINISH: NONE, PROCESS: NONE

IN M/B
FOR -11 N/A LDW280-66511, SEE NOTE #2 LM-5 (35), LM-6 (36) THRU LM-15 (45). 1 EA
FOR -13 ↕ ↕ ↕ ↕ 1 EA
FOR -15 1 EA
FOR -17 1 EA.
FOR -19 NA LDW280-66511, SEE NOTE #2 LM-5 (35), LM6 (36) THRU LM15 (45) 1 EA.

LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR -11, -13, -15, -17.


-19
N.S.
-17
N.S.
-15
F.S.
$2\frac{9}{32}$ (REF)
$1\frac{5}{8}$ (REF)
$1\frac{13}{16}$ (REF)
$2\frac{7}{16}$ (REF)
$2\frac{1}{2}$ (REF) (3 PLCS)
-15 TRIM F.S.
-19 TRIM N.S.
-11 TRIM N.S.
-17 TRIM N.S.
-15 TRIM F.S.
-13 TRIM N.S.
-13
N.S.
-11
N.S.
LDW280-66511-15 ENG. REF ONLY
LDW280-66511-3DU SHOP REF ONLY
$2\frac{9}{32}$ (REF)
$\frac{1}{32}$
$\frac{1}{32}$
-11 (REF)
DETAIL "△"
(TYP ALL TRIMS)
-11 TRIM N.S.
△
-13 TRIM N.S.
$2\frac{29}{32}$ (REF)
$2\frac{9}{32}$ (REF)
$1\frac{21}{32}$ (REF)
$1\frac{19}{32}$ (REF)
$2\frac{13}{32}$ (REF)

NOTE 2. -11, -13, -15, -17, -19 MAY BE USED IN PLACE OF LDW280-66511-15 ON N/A LDW280-66511.

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.030 ± 1/2°

CONTRACT NO. NAS-9-1100 WORK PACKAGE FUNCTION NO. 111
I?T = E DOCUMENTATION-TYPE II

NOTE #1: UPON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR: LDW280-18684 -11, -13, -15, & -17 IS SIMILIAR TO LDW280-66511-15.

THIS IS AN ORIGINAL E.O.

DETAIL △ SHOP INFO ONLY. ✱ DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 PKG 2 CCA 1235 ECP H053	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE HANDLING CHARACTERISTICS. LM6 R.E 1/25/69	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO	SK 1/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LM-5 (35)	
		LM 6 (36) THRU	
		LM 15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✱		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JHS	AB Mc		RSt	NM			
DATE	1/25/69	1/27/69		1-25-69	1-27-69		1/27/69	1/28/69
	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO
C	DOOR ~ D/S-FUEL FILL & DRAIN QD III X131.140	LDW280-18684	A1

1-25-69
ISSUED BY: R. MONACO/W. KAY ~ P. THORSUSEN X87222 J.J.R. SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-68

DWG NO. LEO 280
EO NO. 1345
CONTROL INFO NO. LDW280B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680	✓	B3	
-18681	✓	B2	
-18684	✓	B1	
-18685		B1	↓
LDW280-18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1861 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM – *

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				P8t	WH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280 | EO NO. 1568
CONTROL INFO NO. LDW 280B 8124

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW 280-18667	SEE DWG	A2
✓ 668		A3
✓ 671		A4
✓ 676		B2
✓ 677		B2
✓ 678		B2
✓ 679		B2
✓ 680		B4
✓ 681		B3
✓ LDW 280-18684	SEE DWG	B2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 99 PG 41 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69 K 8/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	P8t				N			
DATE	7-29-69			7/29/69	8-2-69		8/1/69	8/16/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO 280
EO NO.: 1568

8-29-69
ISSUED BY G. HANSMANN - X87222 (ML) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18685 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66511	LM-15 (45)	3
		LM-14 (44)	3
		LM-13 (43)	3
		LM-12 (42)	3
		LM-11 (41)	3
		LM-10 (40)	3
		LM-9 (39)	3
		LM-8 (38)	3
		LM-7 (37)	3
		LM-6 (36)	3
LM	LDW280-66511	LM-5 (35)	3
PART NO. LDW280-18685 -13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66511	LM-15 (45)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
		LM-10 (40)	1 EA
		LM-9 (39)	1 EA
		LM-8 (38)	1 EA
		LM-7 (37)	1 EA
		LM-6 (36)	1 EA
LM	LDW280-66511	LM-5 (35)	1 EA
PART NO. LDW280-18685-11, -15, -17 & -19			

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-19	207	ME-16A 7/3/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.030 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965, CCA 1235	

ECP H053

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R.MONACO 1-25-69	RELIABILITY	
LAYOUT BY	R.MONACO 1-25-69	THERMO	A.B. 1-27-69
CHECKED BY			
GR. LEADER	P.S.T. 1-25-69		
VEH DES INT	J.H.S. 1-25-69		
STRUCTURES	N.M. 1-27-69	PROJ ENGR	J.A.P. 1-27-69
STRUCTURES		REL GROUP	J. GROD 1-29-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR
DESCENT STAGE ~ FUEL FILL & DRAIN ~
QUAD. III ~ X116.340

SIZE	CODE IDENT NO.		
B	26512	LDW280-18685	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

CDR 1-25-69

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	G~~OV~~T APPD
											REWORK	SCRAP			
A	1								EO A1 ~ INITIAL DWG RELEASE w. murphy 3-11-69 am	LM-5 THRU LM-15			LUNDSTEN 3-10-69		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A	Thoyusen 3-12-69	3/12/69	N.M. 3/18/69				MMR 3/14/69				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18685	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18685-19	E	STRAP	TITANIUM SH	MIL-T-9046, TYPE III COMP. C (STA)	6AL-4V	.020 × 1¼ × 5¼	NONE	NONE	
		-17	↕	↕	↕	↕	↕	.020 × 1¼ × 6⅝	↕	↕	
		-15						.020 × 3½ × 20⅞			
		-13						.020 × ⅞ × 19⅞			
		LDW280-18685-11	E	STRAP	TITANIUM SH	MIL-T-9046, TYPE III COMP. C (STA)	6AL-4V	.020 × 3½ × 26⅜	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18685
A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

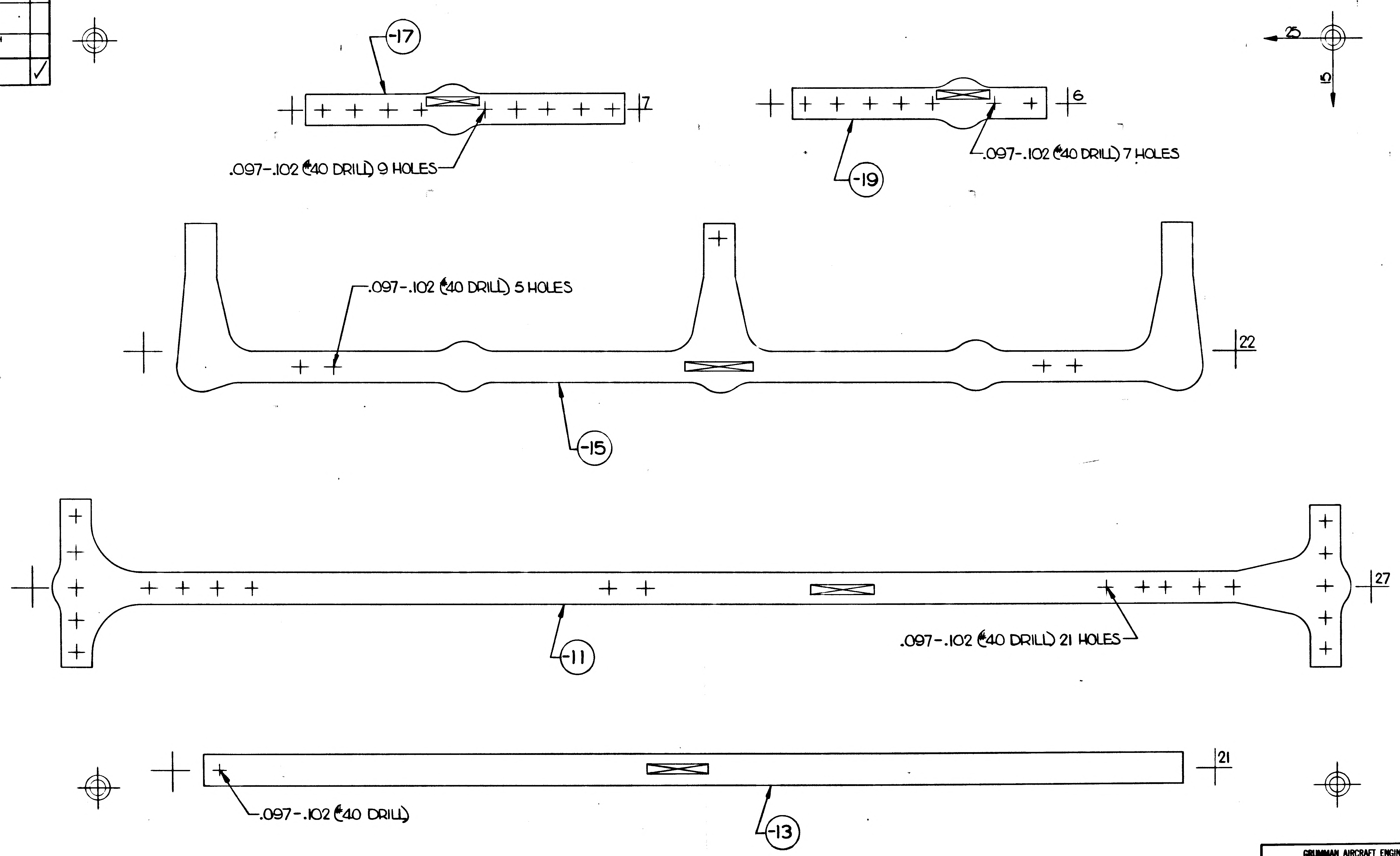
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:

1. UPON INITIAL RELEASE OF THIS DRAWING, TOOLING FOR LDW280-18685-11, -13, -15, -17 & -19 IS SIMILAR TO LDW280-66511-15.
2. -11, -13, -15, -17 & -19 MAY BE USED IN PLACE OF LDW280-66511-15 ON N/A LDW280-66511.



-17
7
.097-.102 (#40 DRILL) 9 HOLES
-19
6
.097-.102 (#40 DRILL) 7 HOLES
25
15
.097-.102 (#40 DRILL) 5 HOLES
22
-15
27
.097-.102 (#40 DRILL) 21 HOLES
-11
21
.097-.102 (#40 DRILL)
-13

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18685	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

LDW280-18685 A

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18685	EO NO. A1
CONTROL INFO NO. LDW280 B6896	

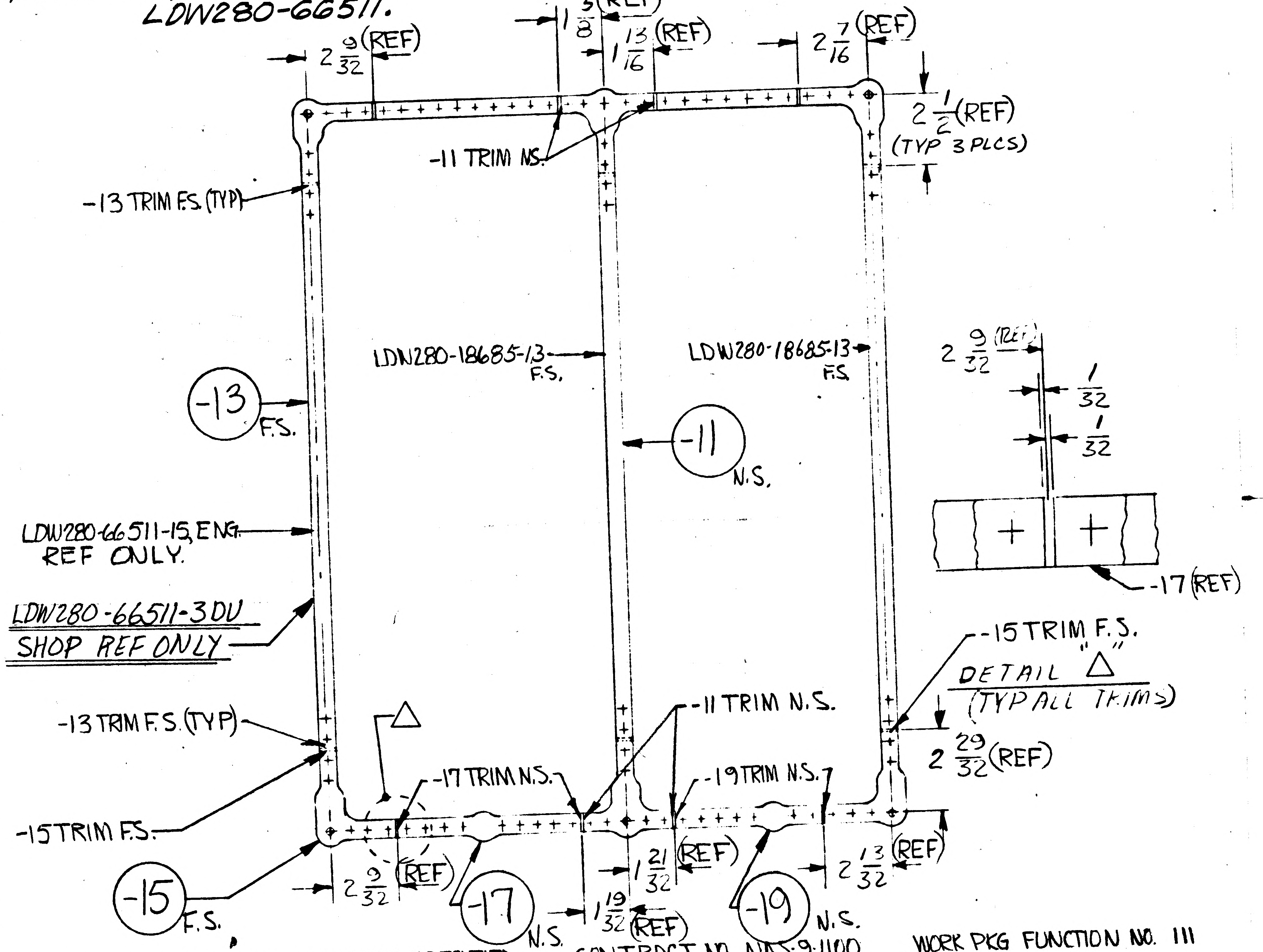
ENG 32.2 REV 3-65

CREATE -11,-13,-15,-17, & -19, IDENTICAL TO LDW280-66511-15 EXCEPT AS SHOWN.
-11,-13,-15,-17, & -19 ARE MADE FROM TITANIUM SH. .020 THICK, 6AL-4V STA, MIL-T-9046, TYPE III COMP. C. FINISH: NONE, PROCESS: NONE.

IN M/B
FOR -11 . N/A LDW280-66511, SEE NOTE #2 LM-5(35), LM-6(36) THRU LM-15(45). 1 EA.
FOR -13 3 EA.
FOR -15 1 EA.
FOR -17 1 EA.
FOR -19 N/A LDW280-66511 SEE NOTE #2 LM 5(35), LM-6(36) THRU LM-15(45) 1 EA.

LOFTED DRAWING TO BE MADE FROM APPROVED MASTER TEMPLATES FOR -11,-13,-15,-17 & -19.

NOTE 2. -11,-13,-15,-17,-19 MAY BE USED IN PLACE OF LDW280-66511-15 ON N/A LDW280-66511.



2 9/32 (REF)
1 5/8 (REF)
1 13/16 (REF)
2 7/16 (REF)
2 1/2 (REF) (TYP 3 PLCS)
-11 TRIM N.S.
-13 TRIM F.S. (TYP)
LDW280-18685-13 F.S.
LDW280-18685-13 F.S.
-13 F.S.
-11 N.S.
2 9/32 (REF)
1/32
1/32
-17 (REF)
LDW280-66511-15, ENG. REF ONLY.
LDW280-66511-3DU SHOP REF ONLY
-15 TRIM F.S.
DETAIL "Δ" (TYP ALL TRIMS)
-11 TRIM N.S.
-13 TRIM F.S. (TYP)
Δ
-17 TRIM N.S.
-19 TRIM N.S.
2 29/32 (REF)
-15 TRIM F.S.
-15 F.S.
2 9/32 (REF)
-17 N.S.
1 19/32 (REF)
1 21/32 (REF)
-19 N.S.
2 13/32 (REF)

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.030 ±1/2°

CONTRACT NO. NAS-9-1100
WORK PKG FUNCTION NO. 111

I & T = E
DOCUMENTATION - TYPE II

NOTE #1: UPON INTIAL RELEASE OF THIS DRAWING, TOOLING FOR: LDW280-18685-11,-13,-15,-17 & -19 IS SIMILIAR TO LDW280-66511-15.

THIS IS AN ORIGINAL EO

DETAIL Δ SHOP INFO ONLY.
✱ DWG NOT MADE

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 2965 PKG2 CCA1235 ECP H053	(5)
REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS. LM6 R.E. 1/25/69	DESCRIPTION OF EO: EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO			GAEC EO RELEASE: JK 1/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM5 (35)	
		LM6 (36) THRU	
		LM15 (45)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS		
✱ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		AB		RH	NM			
DATE	1/25/69	1/27/69		1-25-69	1-27-69		1/27/69	1/24/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO
C	DOOR - D/S - FUEL FILL & DRAIN QD III X 116.340	LDW280-18685	A1

1-25-69
ISSUED BY R. MONACO / W. KAY J.J.R. ~ P. THORJUSEN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 97.1 REV 3-68

DWG NO. LEO 280
EO NO. 1345
CONTROL INFO NO. LDW280B 744

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680	✓	B3	
-18681	✓	B2	
-18684	✓	B1	
-18685	✓	B1	↓
LDW280-18686		B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: VK 4/16/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/9/69			4-2-69	4/?/69		4/9/69	4/16/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

ISSUED BY 052869 MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted]. LEO 280		EO NO. 1567
CONTROL INFO NO. LDW 280B 8125		

FOR ALL PART NUMBERS EFFECTIVE ON LM-~~10~~(40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18685	SEE DWG	B2	
-18686		B2	
-18687		B2	
LDW280-18691		B4	
~~23519~~			
~~529~~			
~~530~~			
~~532~~			
~~535~~			
~~LDW280-23536~~	SEE DWG		

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 389C PKG 99 PG 41 & 42 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (123) REQMTS

GAEC EO RELEASE: 8-13-69; 8/18/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY	PGT				M			
DATE	7-29-69			7/27/69	8-2-69		8/2/69	8-16-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1567

8-29-69
ISSUED BY G. HANSMANN X 87222 SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. LE0280 | EO NO. 1740
CONTROL INFO NO. LDW280B8723

FOR THE DRAWINGS LISTED BELOW REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
LDW280-66512-1-1	LDW280-66510	SEE DWG	A5
-P18587 -19 -P18587-11 -P18587-13	-66510 -66511 -66512		A7
-18201-13 & -21	-66511		B7
-18684-11, -13, -15, -17 & -19	-66511		B3
-18685-11, -13, -15, -17 & -19	-66511		B3
-18686-11, -13, -15 & -17	-66512		B3
-18687-11, -13 & -15	-66512		B3
LDW280-18607-11 & -13	LDW280-58672	SEE DWG	B3

*APPLICABLE DASH NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994 PKG92

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM -*

GAEC EO RELEASE: (5) JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	—	10/21/69		10-20-69			10/24/69	
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LE0280	1740

CDR 110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18686 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66512	LM-15(45)	1
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
LM	LDW280-66512	LM-5(35)	1
PART NO. LDW280-18686-13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66512	LM-15(45)	2 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(39)	
		LM-7(37)	
		LM-6(36)	
LM	LDW280-66512	LM-5(35)	2 EA
PART NO. LDW280-18686-11, -15, & -17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-17	PRIM NO. 207	JK(001) ME-16 A 3/14/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 2965 CCA1235

ECPH053

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	KAY	1-25-69	THERMO	JF	1-27-69
LAYOUT BY	KAY	1-25-69			
CHECKED BY					
GP LEADER	PST	1-25-69			
VDI	JHS	1-27-69			
STRUCT			PROJ ENGR	JAP	1-27-69
STRUCT	NM	1-27-69	REL GROUP	GROD	1-29-69
WEIGHTS					

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE - QUAD IV
DOOR INSTALLATION-OUTBOARD

SIZE B | CODE IDENT NO. 26512 | LDW280-18686 | A
SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10, 2.00&3.00							EO A1 INITIAL DRAWING RELEASE D.F. J. Bell	LM-5 THRU LM-15			SMALL 3-7-69		

CHG APPROVED LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	THERMO					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18686	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18686-17	E	STRAP	TITANIUM	MIL-T-9046	6AL-4V STA	.020 × 2 × 8	NONE	NONE	
		-15	E	↕	↕	↕	↕	.020 × 2 × 8	↕	↕	
		-13	E	↕	↕	↕	↕	.020 × 4 × 28	↕	↕	
		LDW280-18686-11	E	STRAP	TITANIUM	MIL-T-9046	6AL-4V STA	.020 × 4 × 28	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18686	A

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

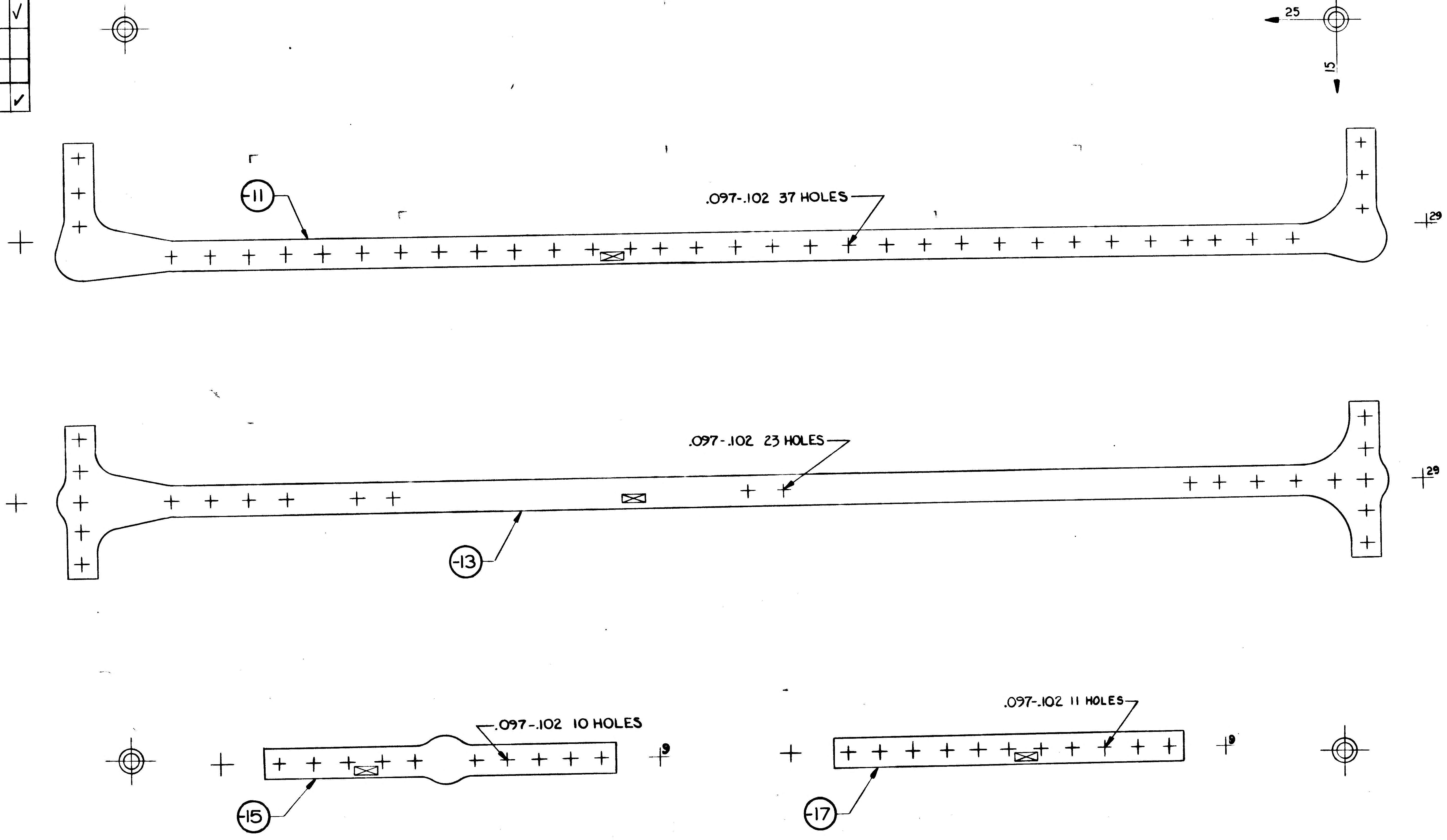
LDW280-18686 A

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

TEAM CK A S 3-7-69

OVERLAY OK A S 3-7-69

NOTES
1. UPON INITIAL RELEASE OF THIS DWG. TOOLING FOR LDW280-18686-11,-13,-15 & -17 IS SIMILIAR TO LDW280-66512-15
2. -11,-13,-15 & -17 MAY BE USED IN PLACE OF LDW280-66512-15 ON N/A LDW280-66512



GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18686	A

SCALE FULL SHEET 3

FOR PHOTO REPRODUCTION K2

ENG 73.3 REV. 5-67

LDW280-18686 A

01

NAS 9-1100

ENG 32.2 REV 3-65

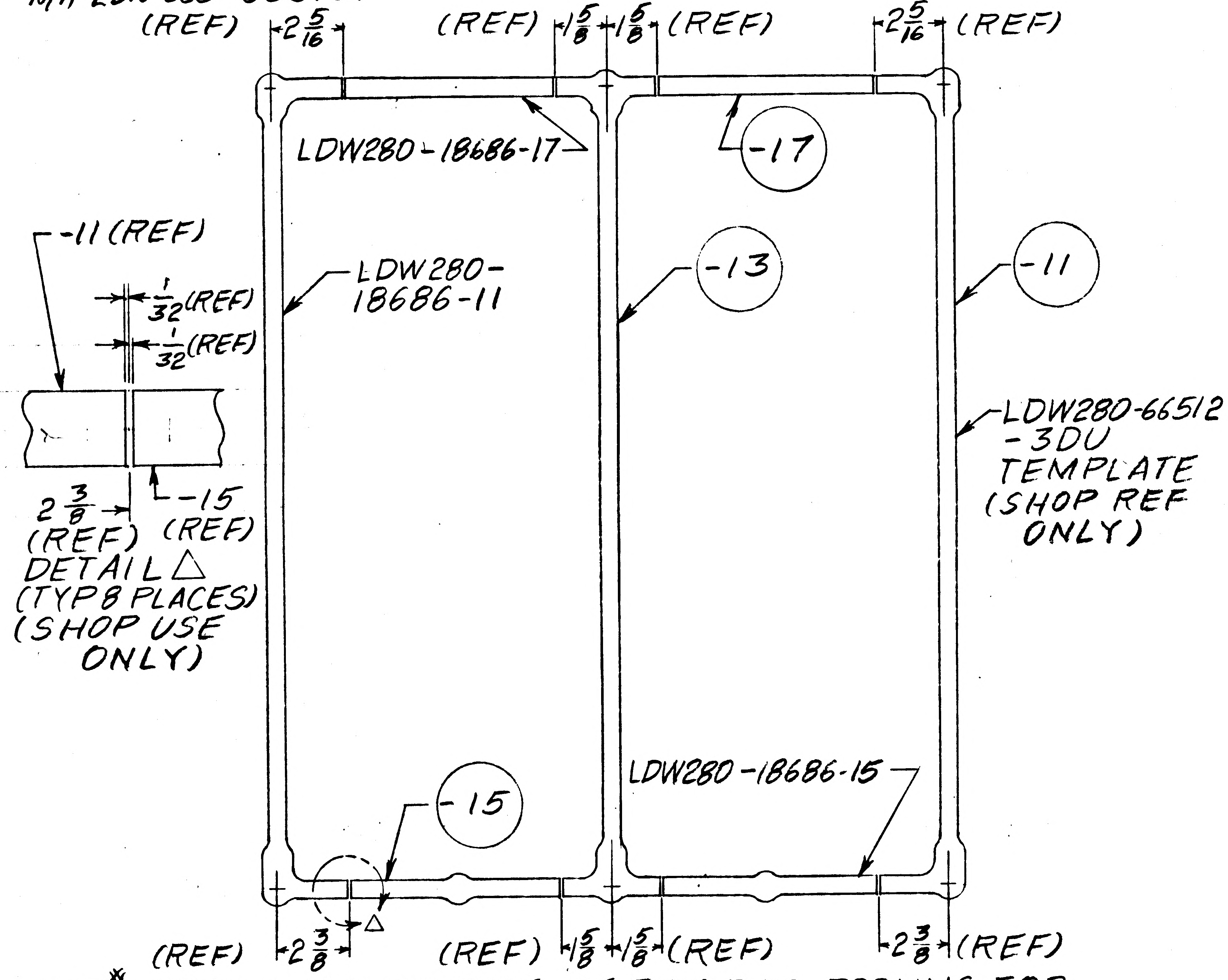
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18686		EO NO. A1
CONTROL INFO NO. LDW280B6897		

CREATE -11,-13,-15&-17 IDENTICAL TO LDW280-66512-15 EXCEPT AS SHOWN.
IN M/B:

FOR-11, N/A LDW280-66512, SEE NOTE#2, LM-5(35), LM-6(36) THRU LM-15(45)	2 EA
FOR-13	1 EA
FOR-15	2 EA
FOR-17 N/A LDW280-66512, SEE NOTE#2, LM-5(35), LM-6(36) THRU LM-15(45)	2 EA

MAT'L FOR-11,-13,-15&-17 TITANIUM SH .020 6AL-4V STA MIL-T-9046
FINISH: NONE, PROCESS: NONE
LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR -11,-13,-15&-17.
NOTE#2~ -11,-13,-15&-17 MAY BE USED IN PLACE OF LDW280-66512-15 ON N/A LDW280-66512.


(REF)
$2\frac{5}{16}$
(REF)
$1\frac{5}{8}$
$1\frac{5}{8}$
(REF)
$2\frac{5}{16}$
(REF)
LDW280-18686-17
-17
-11 (REF)
$\frac{1}{32}$ (REF)
$\frac{1}{32}$ (REF)
LDW280-18686-11
-13
-11
LDW280-66512-3DU TEMPLATE (SHOP REF ONLY)
$2\frac{3}{8}$ (REF)
-15 (REF)
DETAIL △ (TYP 8 PLACES) (SHOP USE ONLY)
LDW280-18686-15
-15
(REF)
$2\frac{3}{8}$
(REF)
$1\frac{5}{8}$
$1\frac{5}{8}$
(REF)
$2\frac{3}{8}$
(REF)

NOTE*1. UPON INITIAL RELEASE OF THIS DWG. TOOLING FOR LDW280-18686-11,-13,-15&-17 IS SIMILIAR TO LDW280-66512-15
ALL DIMENSIONS FOR SHOP USE ONLY. DOCUMENTATION TYPE II
* DWG NOT MADE. TOLERANCE UNLESS OTHERWISE SPECIFIED

CONTRACT NO. NAS-9-1100
WORK PKG FUNCTION NO. 111

FRACTIONS	DECIMALS	ANGLES
± 1/32	± .030	± 1/2°

I&T=E
(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2965 PKG#2 PAGE#19 CCA1235 ECP(H053)

REASON FOR EO: TO FACILITATE HANDLING CHARACTERISTICS
LMG R.E. 1/27/69

DESCRIPTION OF EO: E.O. A1 INITIAL DWG RELEASE. PARTS MADE PER E.O.

GAEC EO RELEASE: JK 1/28/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
* REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY				J.J.R.	NM			
DATE	1/27/69	1/27/69		1-25-69	1-27-69		1/27/69	1/9/69
	VDI.	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STRAP-OUTB'D D/S~DOOR INST'L QD.IV
DRAWING NO.: LDW280-18686
EO NO.: A1

ISSUED BY W.KAY x87222 / P.THORJUSEN x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 52.1 REV 3-65

DWG NO. LEO 280 EO NO. 1345
CONTROL INFO NO. LDW780B 7444

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.		CHANGE NO	DWG NOMENCLATURE
LDW280-18671	✓	A3	SEE DWG
-18676	✓	B1	↑
-18677	✓	B1	
-18678	✓	B1	
-18679	✓	B1	
-18680	✓	B3	
-18681	✓	B2	
-18684	✓	B1	
-18685	✓	B1	↓
LDW280-18686	✓	B1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 7 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: VK 4/16/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				PGT	WH			
DATE	4/8/69			4-2-69	4/8/69		4/9/69	4/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG.	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1345

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280		EO NO. 1567
CONTROL INFO NO. LDW 280B 8125		

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING № *	TITLE	CHANGE №
✓ LDW280-18685	SEE DWG	B2
✓ -18686		B2
-18687		B2
LDW280-18691		B4
~~23519~~		
~~529~~		
~~530~~		
~~532~~		
~~535~~		
~~LDW280-23536~~	SEE DWG	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 41 & 42 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS	ON * ADDED LTA-11 (23) REQMTS	Ⓔ 8-13-69 K 8/18/9

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJf				M			
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQ'D		DATE	7-29-69			7/27/69	8-2-69		8/16/69	8-16-69
LM		LTA-11 ([redacted])		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		(23)		PRIORITY	DRAWING TITLE							DRAWING NO.				EO NO.
				C	SEE DRAWINGS							LEO 280				1567

8-29-69
ISSUED BY G. HANSMAWN X 87222 SECTION VDI GROUP NO 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1740
CONTROL INFO NO. LDW280B8723

FOR THE DRAWINGS LISTED BELOW REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
✓ LDW280-66512-1-1	LDW280-66510	SEE DWG	A5
-P18587 -19 ✓ -P18587-11 -P18587-13	-66510 -66511 -66512		A7
✓ -18201-13 & -21	-66511		B7
✓ -18684-11, -13, -15, -17 & -19	-66511		B3
✓ -18685-11, -13, -15, -17 & -19	-66511		B3
✓ -18686-11, -13, -15 & -17	-66512		B3
-18687-11, -13 & -15	-66512		B3
LDW280-18607-11 & -13	LDW280-58672	SEE DWG	B3

* APPLICABLE DASH NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG92

(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM -*

GAEC EO RELEASE: JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	—	10-20-69		10-20-69			10/23/69	
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LE0280
EO NO.: 1740

CDR 110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X 86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-18687 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66512	LM-15(45)	3
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
LM	LDW280-66512	LM-5(35)	3

PART NO. LDW280-18687-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66512	LM-15(45)	1 EA
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8(38)	
		LM-7(37)	
		LM-6(36)	
LM	LDW280-66512	LM-5(35)	1 EA

PART NO. LDW280-18687-11 & -13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
LAST DASH NO. USED	-15	PRIM NO. 207	JK(001) ME-16 A-3/14/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.030 ±1/2°	
ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 2965 CCA1235	

ECP H053

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	W. KAY	1-25-69	THERMO	JAFF	1-27-69
LAYOUT BY	W. KAY	1-25-69			
CHECKED BY					
GP LEADER	PST	1-25-69			
VDI	JHS	1-27-69			
STRUCT			PROJ ENGR	JAP	1-27-69
STRUCT	NM	1-27-69	REL GROUP	GROD	1-27-69
WEIGHTS					

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
INBOARD DECENT STAGE ~ DOOR
INSTALLATION ~ QUADRANT IV

SIZE	CODE IDENT NO.		
B	26512	LDW280-18687	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	100, 1.10 2.00 & 300							EO A1 INITIAL DRAWING RELEASE D. Faas	LM-5 THRU LM-15			SMALL 3-10-69		3/13/69

CHG APPROVED											
LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	THERMO					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18687	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

015

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18687-15	E	STRAP	TITANIUM SH	MIL-T-9046	6AL-4V STA	.020×7/8×21	NONE	NONE	
		LDW280-18687-13	E	STRAP	TITANIUM SH	MIL-T-9046	6AL-4V STA	.020×3 3/4×23 3/4	NONE	NONE	
		LDW280-18687-11	E	STRAP	TITANIUM SH	MIL-T-9046	6AL-4V STA	.020×3 1/2×23 3/4	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18687	A

SCALE NONE

SHEET 2.00 ①

ENG 77.2 7-65

01

NAS 9-1100

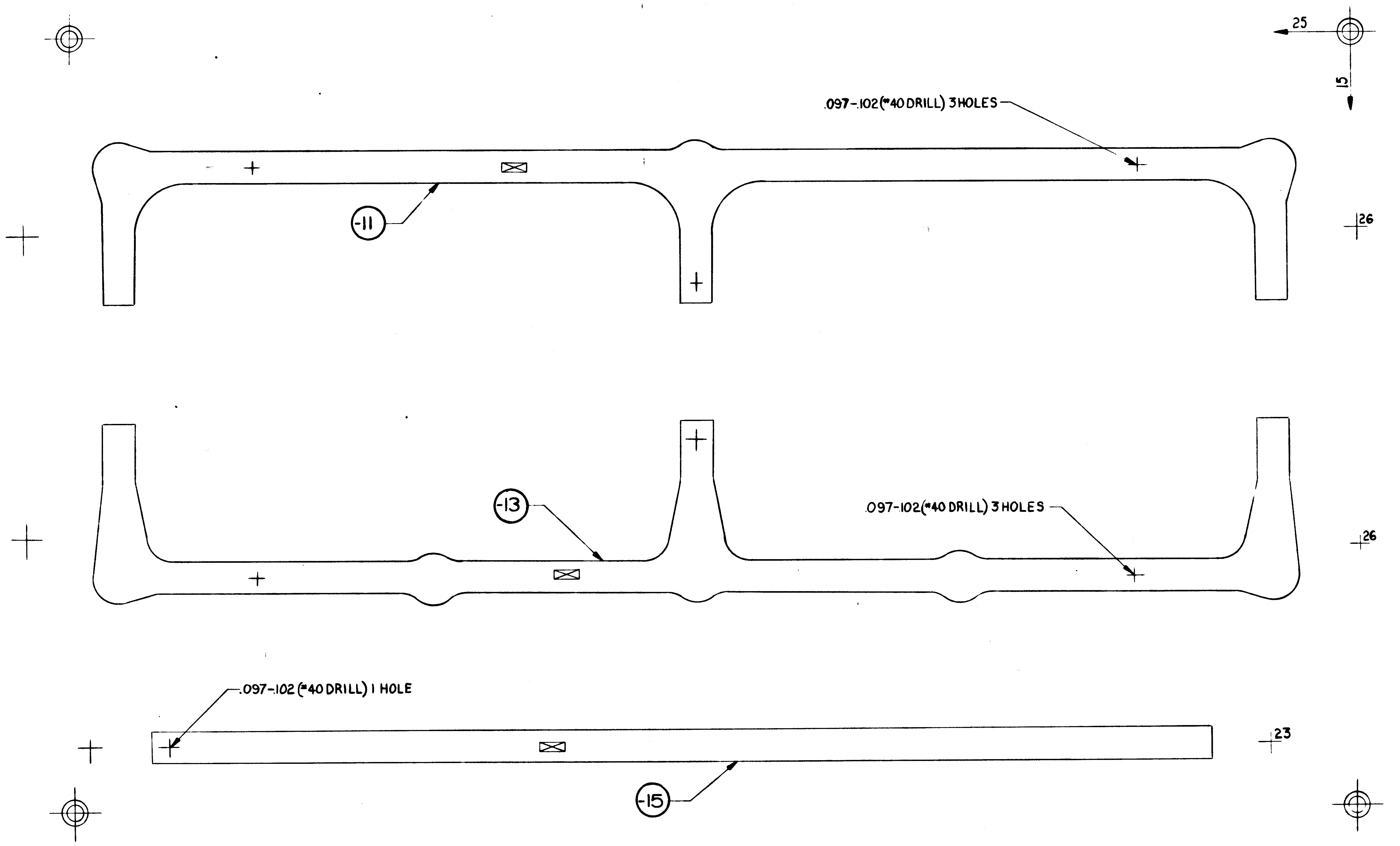
LDW280-18687A

TRAM OK
A S 3-10-69
OVERLAY ES 3-10-69

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES
1. UPON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18687-11, -13 & -15 IS SIMILIAR TO LDW280-66512-15
2. -11, -13 & -15 MAY BE USED IN PLACE OF LDW280-66512-15 ON N/A LDW280-66512



25
15
.097-.102 (#40 DRILL) 3 HOLES
-11
26
-13
.097-.102 (#40 DRILL) 3 HOLES
26
.097-.102 (#40 DRILL) 1 HOLE
23
-15

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18687	A
SCALE FULL		SHEET 300	

LDW280-18687A

DWG 73.3 REV. 5-67

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

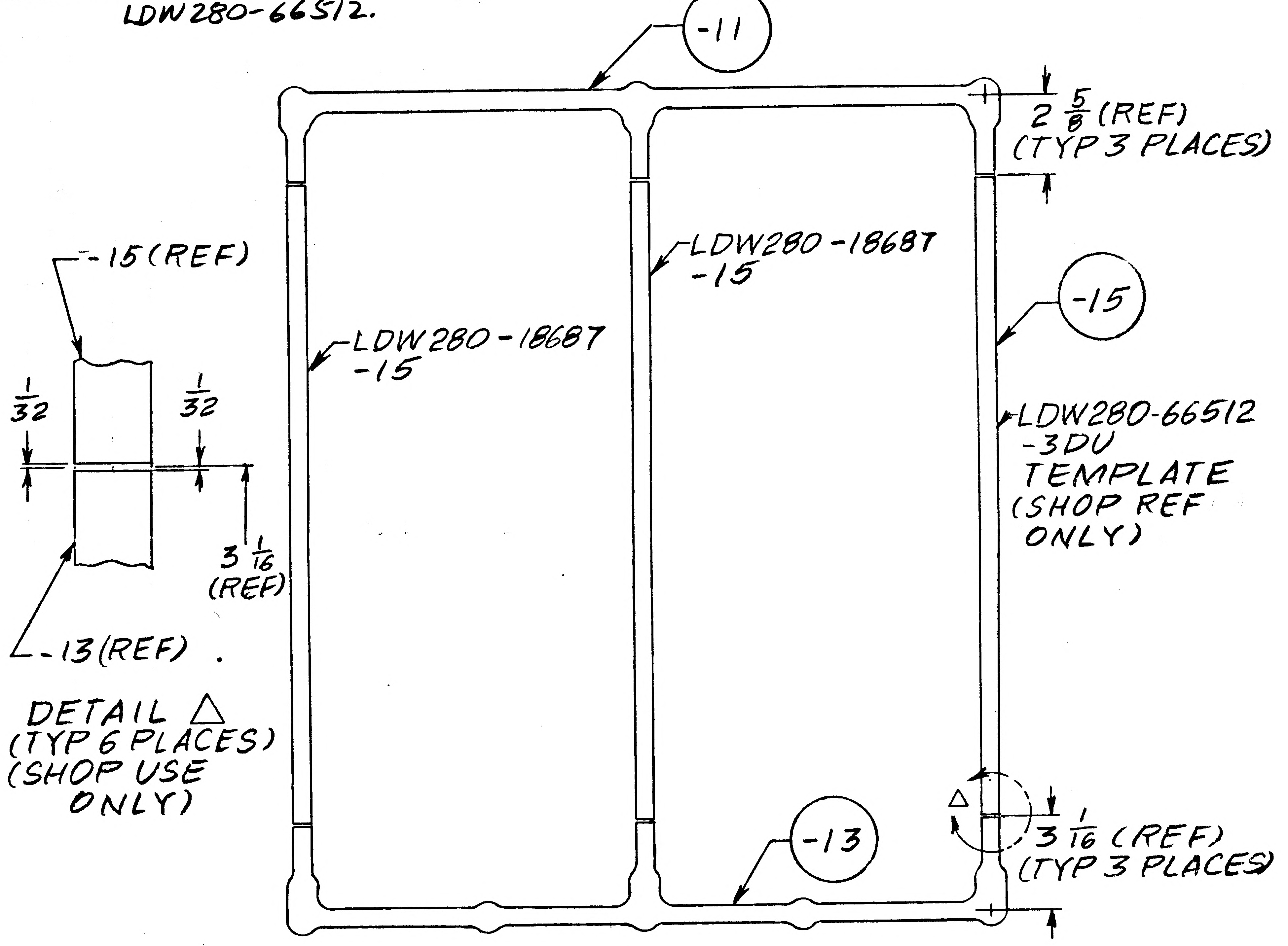
DWG. NO. LDW280-18687	EO NO. A1
CONTROL INFO NO. LDW280B6898	

CREATE -11,-13&-15 IDENTICAL TO LDW280-66512-15 EXCEPT AS SHOWN.

IN M/B:

FOR-11, N/A LDW280-66512, SEE NOTE #2	LM-5(35), LM-6(36) THRU LM-15(45)	1 EA
FOR-13		1 EA
FOR-15, N/A LDW280-66512, SEE NOTE #2	LM-5(35), LM-6(36) THRU LM-15(45)	3 EA

MAT'L FOR-11,-13&-15 TITANIUM SH .020 6AL-4V STA MIL-T-9046
FINISH: NONE, PROCESS: NONE
LOFTED DWG TO BE MADE FROM APPROVED MASTER TEMPLATES FOR-11,-13&-15
NOTE #2: -11,-13&-15 MAY BE USED IN PLACE OF LDW280-66512-15 ON N/A LDW280-66512.


-11
2 5/8 (REF)
(TYP 3 PLACES)
-15(REF)
1/32
1/32
3 1/16
(REF)
-13(REF)
DETAIL △
(TYP 6 PLACES)
(SHOP USE ONLY)
LDW280-18687
-15
LDW280-18687
-15
-15
LDW280-66512
-3DU
TEMPLATE
(SHOP REF ONLY)
△
3 1/16 (REF)
(TYP 3 PLACES)
-13

NOTE #1: UPON INITIAL RELEASE OF THIS DWG TOOLING FOR LDW280-18687-11,-13&-15 IS SIMILIAR TO LDW280-66512-15

ALL DIMENSIONS FOR SHOP USE ONLY.
DOCUMENTATION TYPE II
✱ DWG NOT MADE
CONTRACT NO. NAS9-1100
WORK PKG FUNCTION NO. 111

TOLERANCE UNLESS OTHERWISE SPECIFIED
FRACTIONS ±1/32 DECIMALS ±.030 ANGLES ±1/2°

I&T=E

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD2965 PKG #2 PAGE #19 CCA 1235 ECP(H053)

REASON FOR EO TO FACILITATE HANDLING CHARACTERISTICS LTC R.C. 1/27/69	DESCRIPTION OF EO E.O. A1 INITIAL DWG RELEASE. PARTS MADE PER E.O.

GAEC EO RELEASE: JK 1/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	
		LM-6(36) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✱ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY								
DATE	1/27/69	1/27/69		J.J.R. 1-25-69	1-27-69		1/27/69	1/28/69
	VDT.	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

STRESS GROUP: NM

PRIORITY: C

DRAWING TITLE: STRAP-INB'D D/S~DOOR INST'L~QD IV

DRAWING NO.: LC 1280-18687 EO NO.: A1

ISSUED BY W. KAY x87222/P. THORJUSEN 87222 SECTION V.D.I. GROUP NO. 335 PL 25

NAS 9-1100

GO 32.1 REV 3-69

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1449
CONTROL INFO NO. LDW280B 7445

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280 -18687 ✓	B1	SEE DWG
-18688	B5	↑
-18691	B3	
-23519	E2	
-23529	C9	
-23530	E6	
-23532	F3	
-23535	C3	
-23536	E5	↓
LDW280 -23538	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE (P): SMB 4-24-69; JK 5/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC
APPROVED BY								
DATE	4/8/69			4-2-69	4-8-69		4/9/69	5/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1449

ISSUED BY 052869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280
EO NO. 1567
CONTROL INFO NO. LDW 280B 8125

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) [redacted])
ADD LTA-11 (23 [redacted]) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18685	SEE DWG	B2	
✓ -18686		B2	
✓ -18687		B2	
LDW280-18691		B4	
~~23519~~			
~~529~~			
~~530~~			
~~532~~			
~~535~~			
~~LDW280-23536~~	SEE DWG		

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 41 & 42 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-13-69; 8/18/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted]) (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY					M		
				DATE	7-29-69			7/29/69	8-2-69		8-16-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1567

8-29-69
ISSUED BY G. HAWSMAWN X 87222 SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1740
CONTROL INFO NO. LDW280B8723

FOR THE DRAWINGS LISTED BELOW REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS.*

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR.
LDW280-66512-1-1	LDW280-66510	SEE DWG	A5
-P18587 -19 -P18587-11 -P18587-13	-66510 -66511 -66512		A7
-18201-13 & -21	-66511		B7
-18684-11, -13, -15, -17 & -19	-66511		B3
-18685-11, -13, -15, -17 & -19	-66511		B3
-18686-11, -13, -15 & -17	-66512		B3
-18687-11, -13 & -15	-66512		B3
LDW280-18607-11 & -13	LDW280-58672	SEE DWG	B3

*APPLICABLE DASH NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG92 (5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: REMOVED LM-10(40) THRU LM-14(44) EFF. FROM -*

GAEC EO RELEASE: JK 10/23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	—	10-20-69		10-20-69			10/20/69	10/21/69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LE0280	1740

CDR 110369

ISSUED BY D. SHAPIRO/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18688 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LM-13 (43)	1
LM	LDW280-60541	LM-12 (42)	1
LM	LDW280-60541	LM-11 (41)	1

PART NO. LDW280-18688-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM357	LDW200-55501	LM-5(35)	1

PART NO. LDW 280-18688-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-3DR/1 (460)	1
LM	LDW280-60541	LTA-11(23)	1
LM	LDW280-60541	LM-10(40)	1
LM	LDW280-23541	LM-9 (39)	1
LM	↑	LM-8(38)	1
LM	↓	LM-7(37)	1
LM	LDW280-23541	LM-6(36)	1

PART NO. LDW280-18688-19

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	B	B	B	B					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -21

GRUMMAN REL INFO B

PRIM NO.	JK(00)		
207	ME-1A-2/5/9		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES ± 1/64 ± .010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3775

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	G.CHAN		RELIABILITY	
LAYOUT BY	G.CHAN			
CHECKED BY	N. Bernstein	2-5-69		
GR LEADER	PST	1-27-69		
VEH DES INT	JHS	1-27-69		
STRUCT	WJH	1-27-69	PROJ ENGR	JAP 1-27-69
STRUCT			REL GROUP	GROD 1-28-69
WEIGHTS				

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-RH LWR DECK PROP LINES SPT-AFT INBD

SIZE B

CODE IDENT NO. 26512

LDW280-18688 B

SCALE NONE

SHEET 1.00 OF 4

B

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00 3.00		LFM-357 —					EO A1 INITIAL DRAWING RELEASE	LM-5 THRU LM-15			SMALL 2-4-69		
									RETRACED SH. 3.00 NC - LAST REV 'A' - SH. SIZE C WAS B. - M. SMALL 8-18-70						
B	1	1.00 1.10				✓		EO B1 LCD 3775	ON-11, REMOVED EFF LM-6 THRU LM-15 WAS LFM 357, LM-5, LM-6 THRU LM-15. ADDED -13.	LM-6 THRU LM-15		-11	M. SMALL 8-18-70		
	2					✓		EO B2 LCD 3775	ADDED -15. REMOVED -13			-13			
	3					✓		EO B3 LCD 3775	ADDED -17. REMOVED -15			-15			
	4	1.00, 2.00 3.00				✓		EO B4 LCD 3775	ADDED -19. REMOVED -17			-17			
	5	1.00.				✓		LE0280-1449 LCD 3587	DELETED LM-15 EFF FROM -19	LM-15		-19			
	6	1.00				✓		LE0280-1649 LCD 3890	FOR -19, N/A LDW280-60541 WAS LDW280-23541 FOR LM-10 THRU LM-14 & ADDED LTA-3DR/1 & LTA-11 EFF	LM-10 THRU LM-14, LTA-11 LTA-3DR/1	NOT	REQD			
	7	1.00				✓		LE0280-1680 LCD 3890	RESTRICTED -19 BY REMOVING LM-10 THRU LM-14 EFF	LM-10 THRU LM-14		✓			
	8	1.00, 2.00 3.00				✓		EO B8 LCD 3890	ADDED -21.	LM-11 THRU LM-13	NOT	REQD			
	9					✓		LCD 3890	REF LEO 280-1680: "RESTRICTED -19 BY REMOVING LM-10 THRU -14" S/B "BY REMOVING LM-11 THRU -14". REF EOB8: REMOVED C/O "EFF OF -19 WAS LM-6 THRU LM-13" DISPOSITION OF PARTS S/B "NOT REQD"	LM-10 THRU LM-14	NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A						
B	8/20/70	8-21-70	VAB. 8/24/70	8/24/70		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18688	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18688-21	E	PLATE	AL.ALY. SH.	QQ-A-250/12	7075-T6	.090 × 3 × 4	NONE	88& NOTE 1	
								LDW280-18688-19	E	PLATE	ALY. ALY. SH.	QQ-A-250/12	7075-T6	.090 × 3 × 3	NONE	88& NOTE 1	
								LDW280-18688-11	E	PLATE	AL.ALY. SH.	QQ-A-250/12	7075-T6	.090 × 2 × 3	NONE	88& NOTE 1	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18688	B

SCALE NONE

SHEET 200

ENG 77.2 1-65

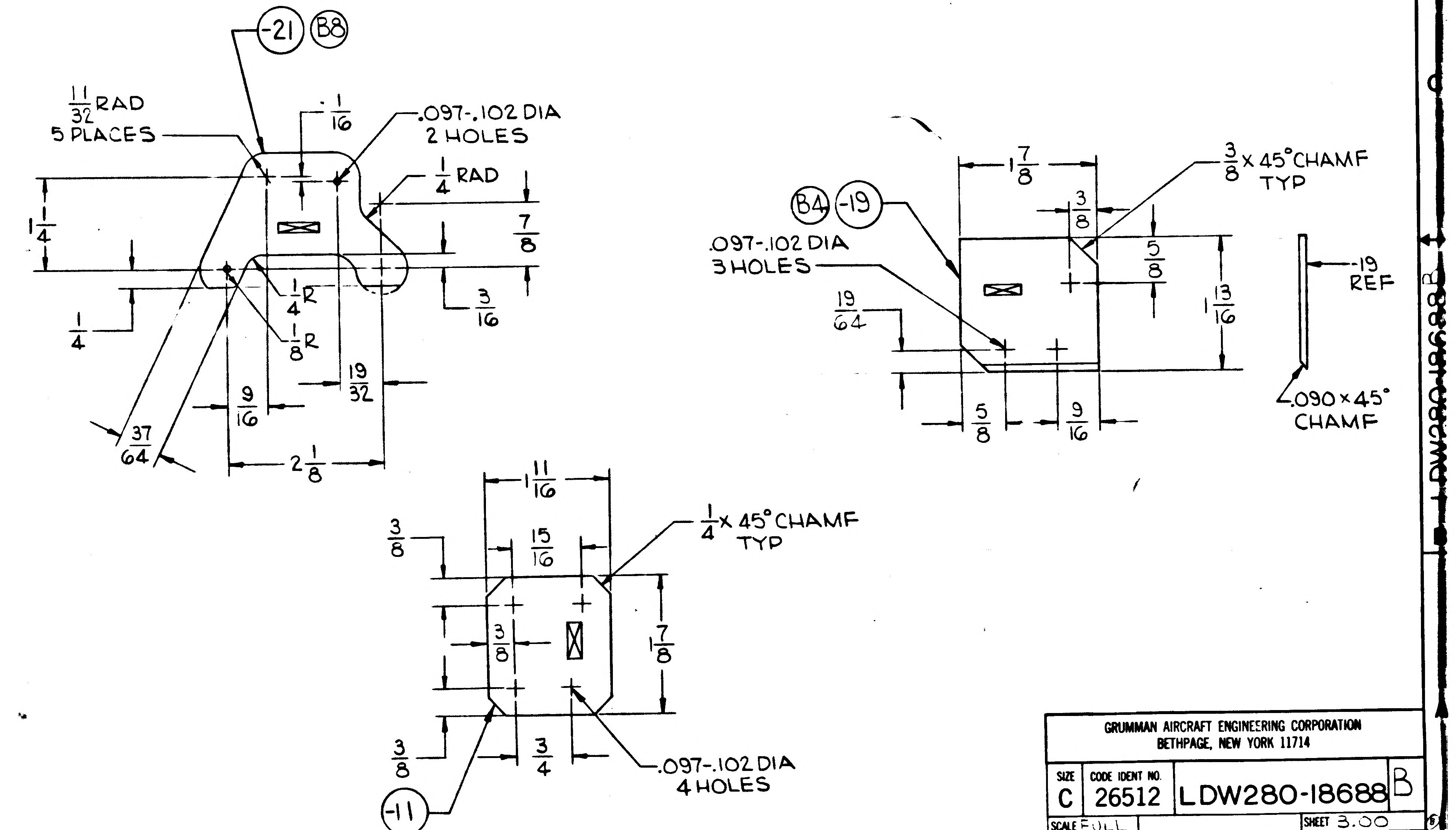
01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE ~~BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

NOTE:
1. PROTECTIVE COAT PER LPC 280-53



-21 B8
11/32 RAD 5 PLACES
1/16
.097-.102 DIA 2 HOLES
1/4 RAD
1 1/4
7/8
3/16
1/4 R
1/8 R
1/4
9/16
19/32
37/64
2 1/8
B4 -19
1 7/8
3/8
3/8 x 45° CHAMF TYP
.097-.102 DIA 3 HOLES
5/8
1 13/16
19/64
5/8
9/16
-19 REF
.090 x 45° CHAMF
1 11/16
1/4 x 45° CHAMF TYP
3/8
15/16
3/8
1 7/8
3/8
3/4
.097-.102 DIA 4 HOLES
-11

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18688	B
SCALE FULL		SHEET 3.00	

SUPERSEDES LDW280-18688'A' 2-4-69

01

NAS 9-1100

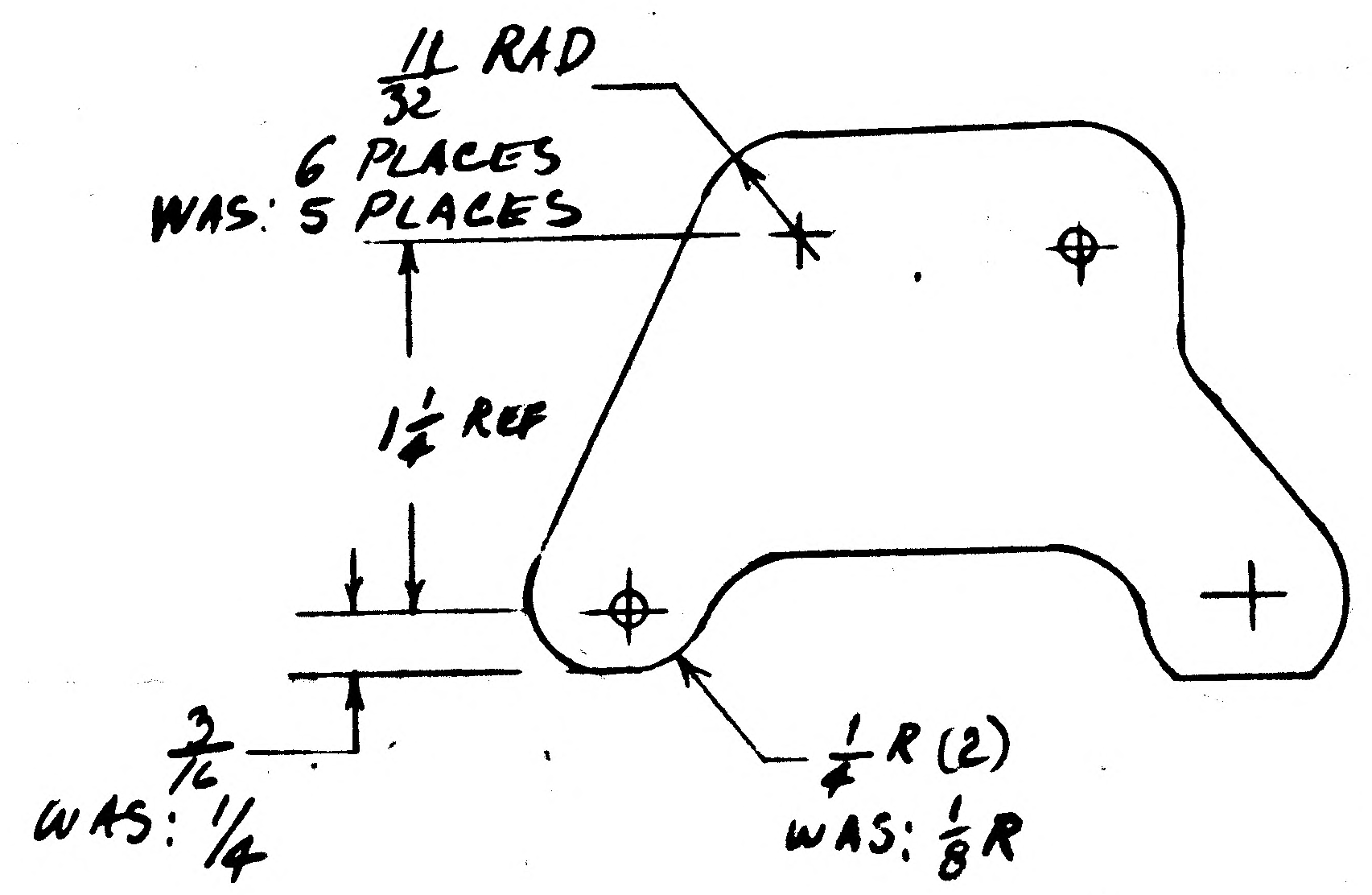
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18688	EO NO. C1
CONTROL INFO NO. LM-5-23155	

ON-21
IN FLD/DWG REVISE AS SHOWN:



ADDED: EFFECTIVITY OF LM-10
TO -21, QTY (1) PER MOD

REMOVED: LM-10 FROM -19

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	4 LCD 3890 PK57

REASON FOR EO: TO INCREASE CLEARANCE WITH ADJACENT PROPULSION LINE (EO CORRECTION)

DESCRIPTION OF EO: SEE ABOVE.

Ⓡ GAEC 1 EO RELEASE: CK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY					KC	CH		
DATE	9/23/70			9/21/70	9/8/70	8-12-70	9/24/70	9/15/70
8-6-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PLATE D/S RH LWR DECK PROP LINES SPT - AFT INBD	LDW280-18688	C1

ISSUED BY & LIAISON, P. HUSTED, 86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18690 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23572	LM-7(37)	1 EA
LM	LDW280-23572	LM-6(36)	1 EA
PART NO. LDW280-18690-13,-15, -17, & -19		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

LINE ITEM

DOCUMENTATION TYPE II

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	200	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-19	207	ME-LA-3/1/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/64 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LDC 3775

CONTRACT NO. NAS 9-1100

DRAWN BY	BARNES 2-7-69
LAYOUT BY	BARNES 2-7-69
CHECKED BY	D. Fass 2-27-69
GP LEADER	PST 2-7-69
VDI	JAP 2-7-69
STRUCT	WJH 2-7-69
STRUCT	
WEIGHTS	

PROJ ENGR JAP 2-7-69
REL GROUP BOTTI 2-7-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE HEAT EXCHANGER SUPPORT SPLICE

SIZE	CODE IDENT NO.		
B	26512	LDW280-18690	A

SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00							EO A1 INITIAL DRAWING RELEASE	LM-6 LM-7			SMALL 2-25-69		
	2	1.00, 200 & 3.00							INC EO A2 D. Lass	LM-6 LM-7					

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS						
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18690	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18690-19	E	ANGLE	AL ALY EXTR	QQ-A-200/3	2024-T3511	GS180A13BF × 3	NONE	76	
		↕ -17	E	DOUBLER	AL ALY SH	QQ-A-250/4	2024-T3	.125 × 2 × 3	↕	↕	
		15	E	DOUBLER	AL ALY SH	QQ-A-250/4	2024-T3	.050 × 2 × 3			
		LDW280-18690-13	E	ANGLE	AL ALY EXTR	QQ-A-200/3	2024-T3511	GS180A13BF × 1½	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18690	A

SCALE NONE

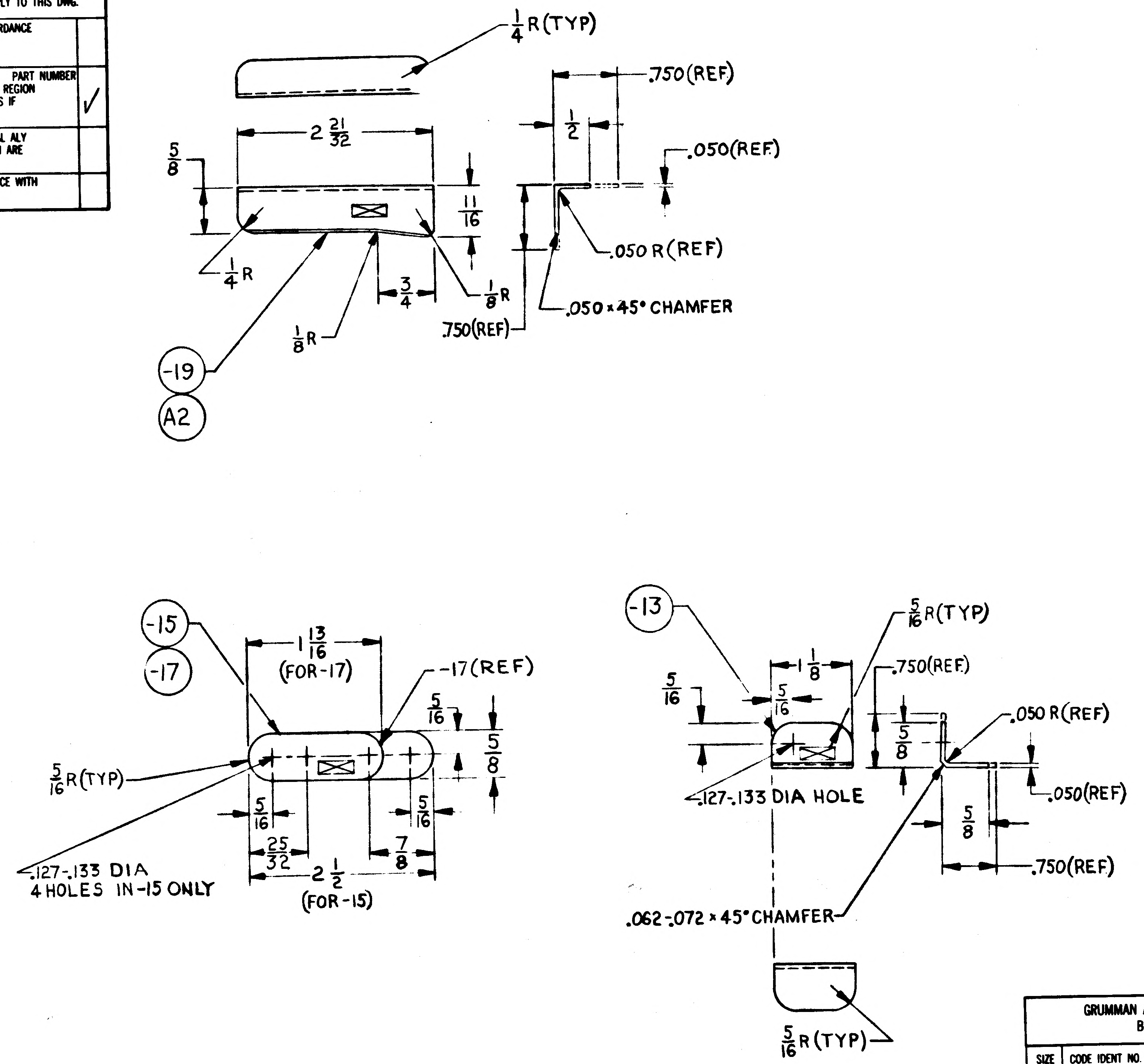
SHEET 2,00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



$\frac{1}{4}$R(TYP)
.750(REF)
$2\frac{21}{32}$
$\frac{1}{2}$
.050(REF)
$\frac{5}{8}$
$\frac{11}{16}$
$\frac{1}{4}$R
$\frac{3}{4}$
$\frac{1}{8}$R
$\frac{1}{8}$R
.750(REF)
.050 R(REF)
.050 × 45° CHAMFER
-19
A2
-15
-17
$1\frac{13}{16}$
(FOR-17)
-17(REF)
$\frac{5}{16}$
$\frac{5}{8}$
$\frac{5}{16}$R(TYP)
$\frac{5}{16}$
$\frac{25}{32}$
$2\frac{1}{2}$
(FOR-15)
$\frac{7}{8}$
$\frac{5}{16}$
.127-.133 DIA
4 HOLES IN-15 ONLY
-13
$\frac{5}{16}$R(TYP)
$\frac{5}{16}$
$\frac{5}{16}$
$1\frac{1}{8}$
.750(REF)
$\frac{5}{8}$
.050 R(REF)
.050(REF)
.127-.133 DIA HOLE
$\frac{5}{8}$
.750(REF)
.062-.072 × 45° CHAMFER
$\frac{5}{16}$R(TYP)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE C	CODE IDENT NO. 26512	LDW280-18690	A
SCALE FULL		SHEET 3.00	

LDW280-18690 A

LDW280-18690 A

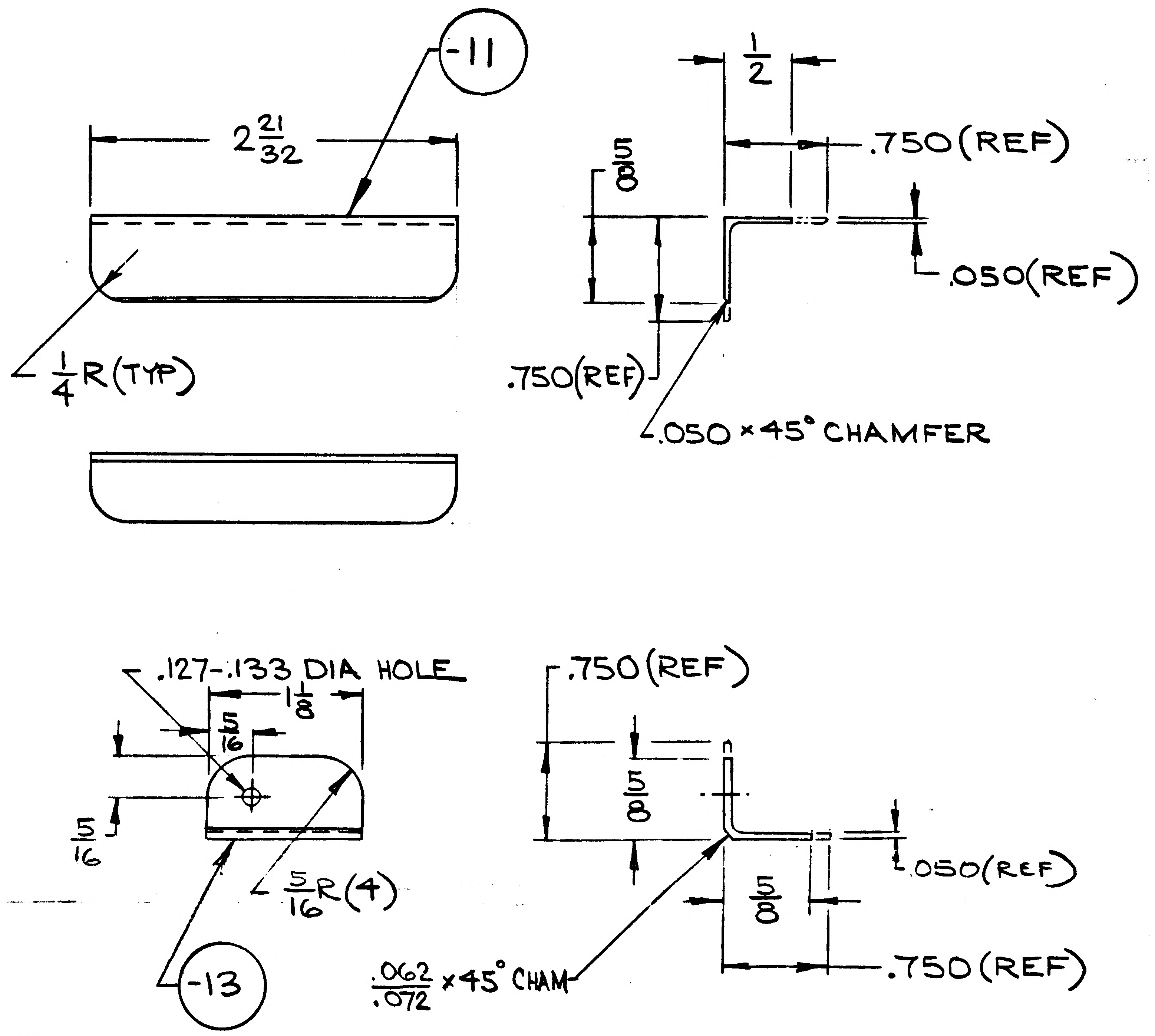
01

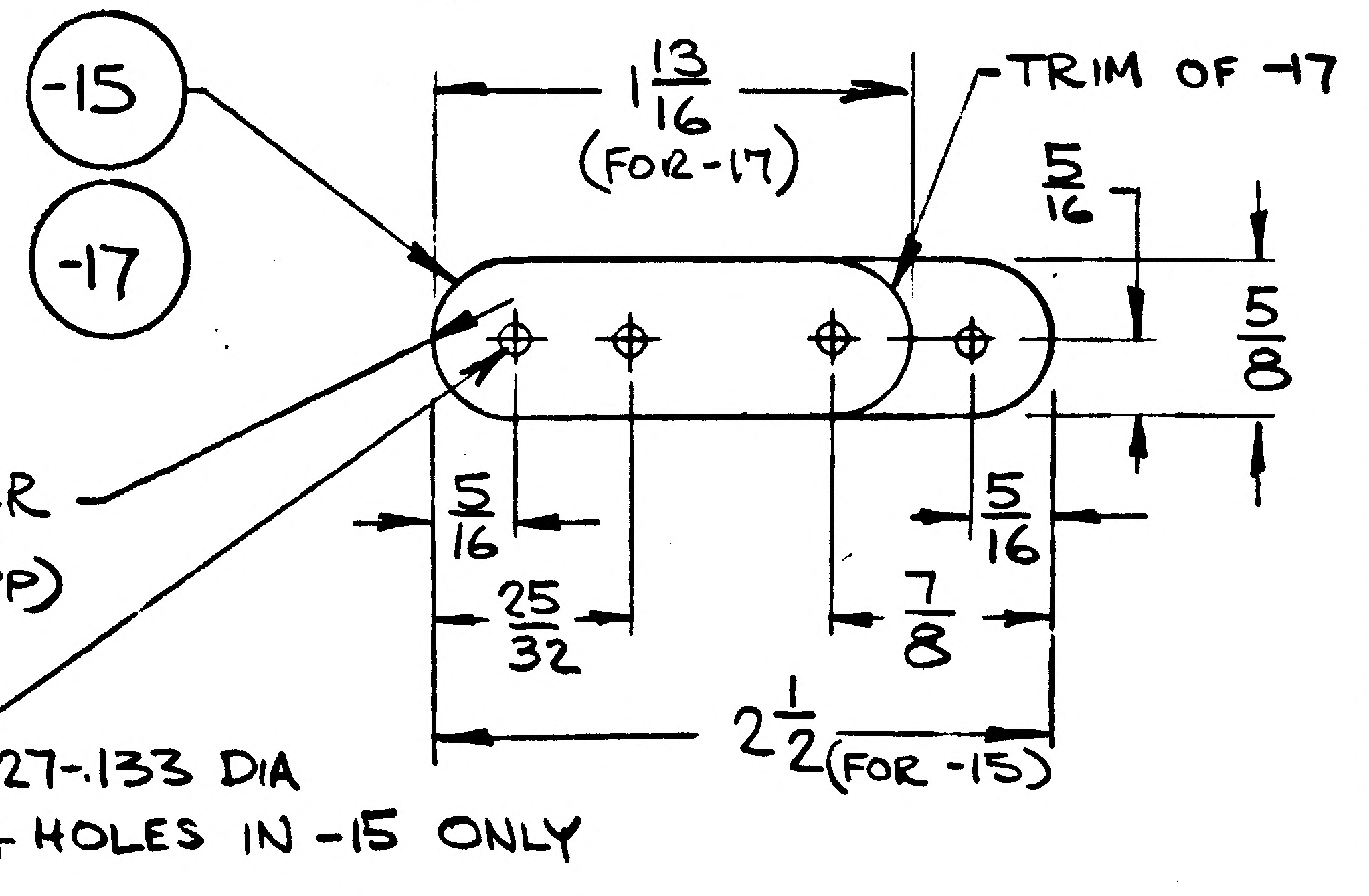
NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18690		EO NO. A1
CONTROL INFO NO. LDW280B7124		


-11
$2\frac{21}{32}$
$\frac{1}{4}$R (TYP)
$\frac{1}{2}$
$\frac{5}{8}$
.750 (REF)
.050 (REF)
.750 (REF)
.050 × 45° CHAMFER
.127-.133 DIA HOLE
$1\frac{1}{8}$
$\frac{5}{16}$
$\frac{5}{16}$
$\frac{5}{16}$R (4)
-13
.750 (REF)
$\frac{5}{8}$
$\frac{5}{8}$
.050 (REF)
.750 (REF)
$\frac{.062}{.072}$ × 45° CHAM


-15
-17
$1\frac{13}{16}$
(FOR -17)
TRIM OF -17
$\frac{5}{16}$
$\frac{5}{8}$
$\frac{5}{16}$R
(TYP)
$\frac{5}{16}$
$\frac{25}{32}$
$\frac{5}{16}$
$\frac{7}{8}$
$2\frac{1}{2}$ (FOR -15)
.127-.133 DIA
4 HOLES IN -15 ONLY

-11 & -13 MADE FROM GS180A13BF
2024-T3511 AL ALLOY EXTR
FIN 76 PER LSP14-9010
N/A LDW280-23572 1EA/MOD
EFF LM-6(36) & LM-7(37)

-15 & -17 MATL 2024-T3 AL ALLOY
SHEET [-15 .050 THK] [-17 .125 THK]
FIN 76 PER LSP14-9010
N/A LDW280-23572 1EA/MOD
EFF LM-6(36) & LM-7(37)

DWG TOL ± 1/64 ± .010 ± 1/2°
WORK PACKAGE FUNCTION 111
ALL PARTS I & T = E

* DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3775 PKG 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ALTERNATE METHOD OF REWORKING HEAT XCHGR FITTING LM-6 RC. 2-7-69	EO A1 INITIAL DWG RELEASE, PARTS MADE PER EO.	(5) 2/7/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		LM-7(37)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAP				W/W		JAP	Bott
*		NOT REQD		DATE	2/7/69			2/7/69	2/7/69		2/7/69	2-7-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S HEAT EXCHANGER SUPPORT ANGLE SPLICE	LDW280-18690	A1

020769
ISSUED BY G. BARNES | P. THORJUSEN X86047 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18691 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23595	LM-15 (45)	1 EA
		LM-14(44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
		LM-8 (38)	
		LM-7(37)	
LM		LM-6(36)	
LFM 363		LM-5 (35)	
LFM 363		LM-4 (34)	
LFM 363	LDW280-23595	LM-2(32)	1 EA

PART NO. LDW280-18691-11,-13,-15,-17,-18,-19,-20&-21 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO A		
LAST DASH NO. USED	-21	PRIM NO.	JK(001)	
		207	ME-16	A-3/4/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/64 ±.010 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3796, ECP D120	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J. LANG		
LAYOUT BY	J. LANG 2-14-69	RELIABILITY	
CHECKED BY			
GR.LEADER	THORJUSON 2-14-69		
VEH.DES.INT	JAP 2-14-69		
STRUCTURES	NM 2-14-69	PROJ ENGR	JAP 2-14-69
STRUCTURES		REL GROUP	GROD 2-15-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE-QD III-GLYCOL INTERSTAGE
DISCONNECT FITTING SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-18691	A
SCALE NONE		SHEET 1.00 OF 4	(A)

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10, 2.00 & 3.00		LFM 363					EO A1 INITIAL DRAWING RELEASE	LM-4 THRU LM-15			R. NISBET 3-4-69		
	2	3.00		LFM 363					INC EO A2						
	3	1.00		LFM 363					INC EO A3	LM-2					
	4	2.00		LFM 363		✓		LCD 3796 ECP D120	REF EO A1 "I & T LPC 19-2 GRUMMAN LPC 19-3 VENDOR" SHOULD BE "NONE"	LM-4 THRU LM-15	NOT	REQD	J.J.R	3/12/69	

CHG APPROVED LTR	GROUP LDR	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS
A	J.J. 3-11-69 Thompson	3/12/69	3/12/69	3/12/69	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18691	A

SCALE NONE SHEET 1.10

(A)

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18691-21	E	ZEE	AL ALLOY SH	QQ-A-250/4	2024-T3	.050X5X11	NONE	#76	
		-20		ANGLE				.050X2X3			
		-19						.050X2X3			
		-18						.050X2X4			
		-17			AL ALLOY SH	QQ-A-250/4	2024-T3	.050X2X4			
		-15				QQ-A-200/3	2024-T3511	GS180A2BFX4			
		-13		ANGLE	AL ALLOY SH	QQ-A250/4	2024-T3	.063X3X5			
		LDW280-18691-11	E	PLATE	AL ALLOY SH	QQ-A-250/4	2024-T3	.125X5X12	NONE	#76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						#76	ALODINE	LSP-14-9010

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18691	A

SCALE NONE

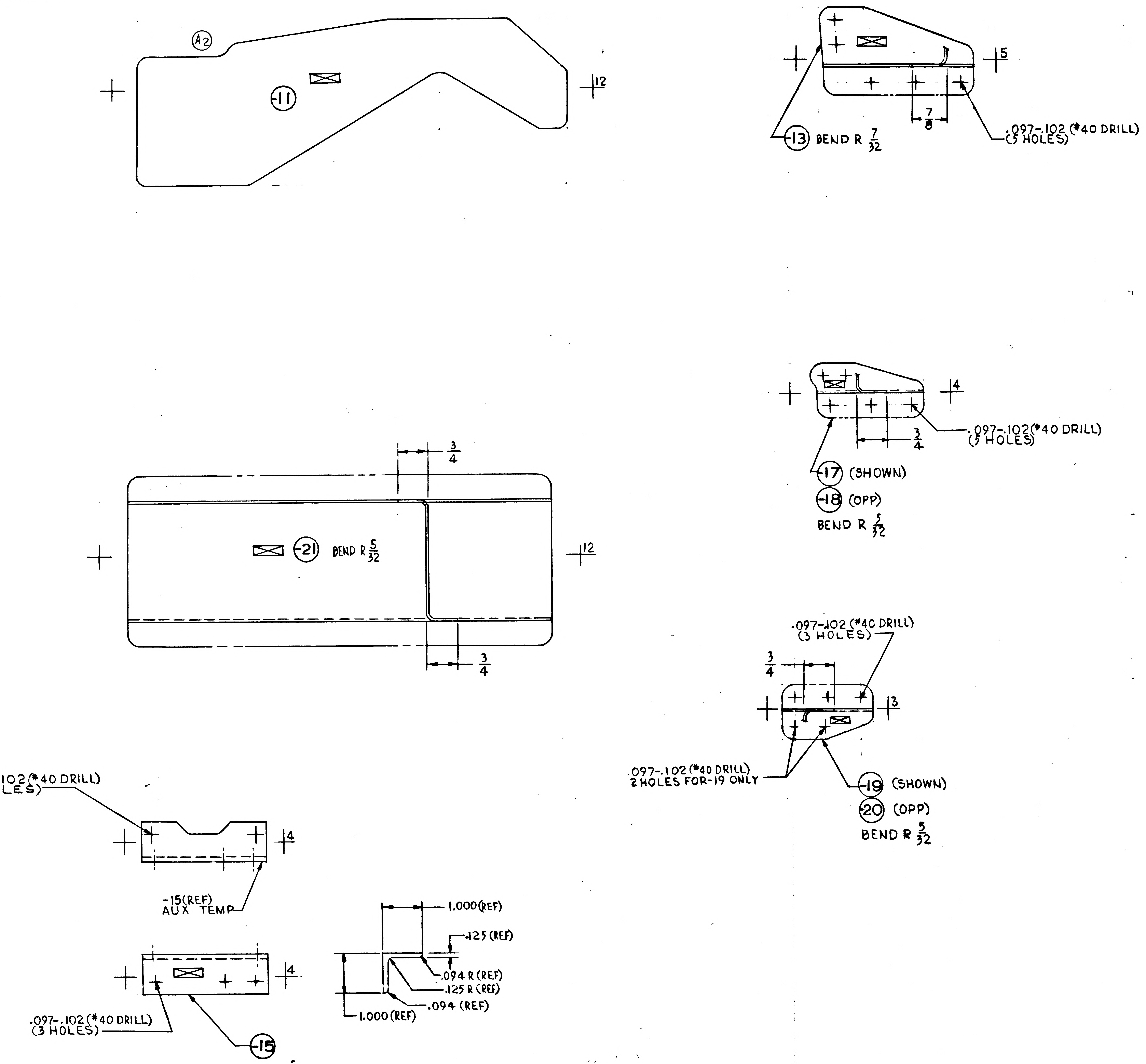
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	



A2
-11
12
-13 BEND R $\frac{7}{32}$
5
$\frac{7}{8}$
.097-.102 (#40 DRILL) (5 HOLES)
$\frac{3}{4}$
-21
BEND R $\frac{5}{32}$
12
$\frac{3}{4}$
4
.097-.102 (#40 DRILL) (5 HOLES)
$\frac{3}{4}$
-17 (SHOWN)
-18 (OPP)
BEND R $\frac{5}{32}$
.097-.102 (#40 DRILL) (3 HOLES)
$\frac{3}{4}$
3
.097-.102 (#40 DRILL) 2 HOLES FOR -19 ONLY
-19 (SHOWN)
-20 (OPP)
BEND R $\frac{5}{32}$
.097-.102 (#40 DRILL) (2 HOLES)
4
-15 (REF) AUX TEMP
4
.097-.102 (#40 DRILL) (3 HOLES)
-15
1.000 (REF)
.125 (REF)
.094 R (REF)
.125 R (REF)
.094 (REF)
1.000 (REF)

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-18691	A
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 1 K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18691
EO NO. B2
CONTROL INFO NO. LDW280B7559

IN MOD BLK FOR -23
RESTRICT TO LDW280-23595 LFM363 LM2,
LM6 THRU 15

WAS

LFM363 LM2, LM4, LM5
LM6 THRU 15

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3796 PK50 PG#2 ECP #0120 (15)

REASON FOR EO: PART NOT REQD ON LM4 & LM5 (EDC6 ON LDW280-23595) REF. (PAPER WORK CHG ONLY ON LM4 & LM5)

DESCRIPTION OF EO: IN MOD BLK FOR -23 REMOVED LM4 & LM5 EFF.

GAEC EO RELEASE: VK 4/18/69

MODEL	EFFECTIVITY	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EI		
LM	LFM363	LM4 (34)	LM5 (35)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -23
APPROVED BY: VDI, SUPPORT, RELIAB. GROUP, GROUP LEADER, STRESS GROUP, ~~LIAISON ENGRG~~ RLT, PROJ ENGRG
DATE: 4/1/69, 4-3-69, 4-10-69, KSG 4-18-69, 4/11/69, 4-18-69

PRIORITY: C
DRAWING TITLE: PLATE D/S - Q III - INTERSTAGE DISCON. FTG. SUPT
DRAWING NO.: LDW280-18691
EO NO.: B2

041069
ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

015

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1449
CONTROL INFO NO. LDW280B 7445

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-18687 ✓	B1	SEE DWG
-18688 ✓	B5	
-18691 ✓	B3	
-23519	E2	
-23529	C9	
-23530	E6	
-23532	F3	
-23535	C3	
-23536	E5	
LDW280 -23538	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG 8 CCA 1821 (5)

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE: (R) SMB 4-24-69; JK 5/8/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JKG			PGF	WH			
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1449

052869
ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 251

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

[redacted] LEO 280
EO NO. 1567
CONTROL INFO NO. LDW280B 8125

FOR ALL PART NUMBERS EFFECTIVE ON ~~LM-10~~ (40) [redacted])
ADD LTA-11 ([redacted] 23) REQUIREMENTS WITH THE SAME
NEXT ASSEMBLY AND QUANTITY.

DRAWING Nº *	TITLE	CHANGE Nº	
✓ LDW280-18685	SEE DWG	B2	
✓ -18686		B2	
✓ -18687		B2	
✓ LDW280-18691		B4	
~~23519~~			
~~529~~			
~~530~~			
~~532~~			
~~535~~			
~~LDW280-23536~~	SEE DWG		

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 99 PG 41 & 42 (5)

REASON FOR EO
NEW DYNAMIC TEST VEHICLE
REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO
ON * ADDED LTA-11 (~~1~~23) REQMTS

GAEC EO RELEASE
8-13-69
8/18/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 ([redacted])	
		(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJF			M			
✓		NOT REQ'D		DATE	7-29-69		7/29/69	8-2-69		8/16/69	8-16-69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP / GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1567

8-29-69
ISSUED BY G. HANSMANN X 87222 SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

LDW280-18692

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	1 EA
		LTA-3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60523	LM-10(40)	1 EA

PART NO. LDW280-18692-15, -16, -17 & -18

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1

PART NO. LDW280-18692-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	1 EA
		LTA-3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60522	LM-10(40)	1 EA

PART NO. LDW280-18692-11 & -19

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.			
207	AK(001) ME-16-8/1/9		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3890 PKG 50

ECP A120

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	H. SCHWETER 7/19/69		
LAYOUT BY	LANG / LEIFER SHAPIRO		
CHECKED BY	D. FASS 7-23-69 DF		
GR. LEADER	Thoyensen 7-28-69		
VEH DES INT	J. Stricland 7/29/69		
STRUCTURES		PROJ ENGR	7/31/69
STRUCTURES	N.M. 7/30/69	REL GROUP	Marsh 8/1/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ STIFFENER
UPPER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18692

SCALE NONE
SHEET 1.00 OF 3

CDR 8-22-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18692-19	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.040 x 4 x 18	T6	88	
		-18		ANGLE				.032 x 2 x 12			
		-17						.032 x 2 x 12			
		-16						.032 x 2 x 16			
		-15		ANGLE				.032 x 2 x 16			
		-13		ZEE				.032 x 4 x 15			
		LDW280-18692-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.040 x 4 x 17	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18692

SCALE NONE | SHEET 2.00

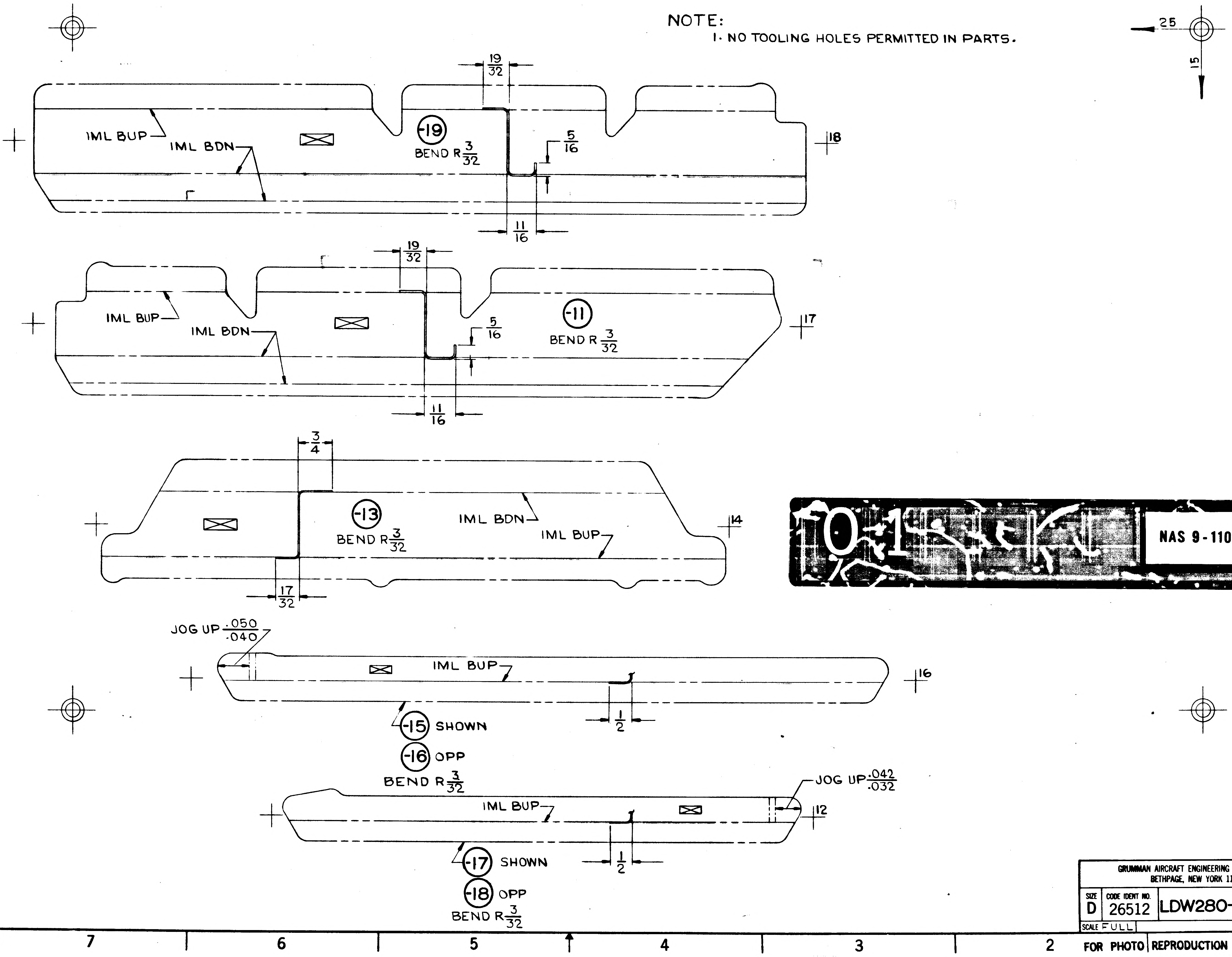
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.


25
15
19/32
IML BUP
IML BDN
-19
BEND R 3/32
5/16
11/16
18
19/32
IML BUP
IML BDN
-11
BEND R 3/32
5/16
11/16
17
3/4
-13
BEND R 3/32
IML BDN
IML BUP
17/32
14
JOG UP .050/.040
IML BUP
16
1/2
-15 SHOWN
-16 OPP
BEND R 3/32
IML BUP
JOG UP .042/.032
12
1/2
-17 SHOWN
-18 OPP
BEND R 3/32

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18692

SCALE FULL SHEET 3-00

FOR PHOTO REPRODUCTION

LDW280-18692

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700		A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747		A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 53 PG3&4

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. *6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T.(70) EFF.

(5)

CAEC I EO RELEASE 9-12-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T.(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
								9/18/69
DATE	9-2-69			8/21/69	9/8/69		9/11/69	9/18/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

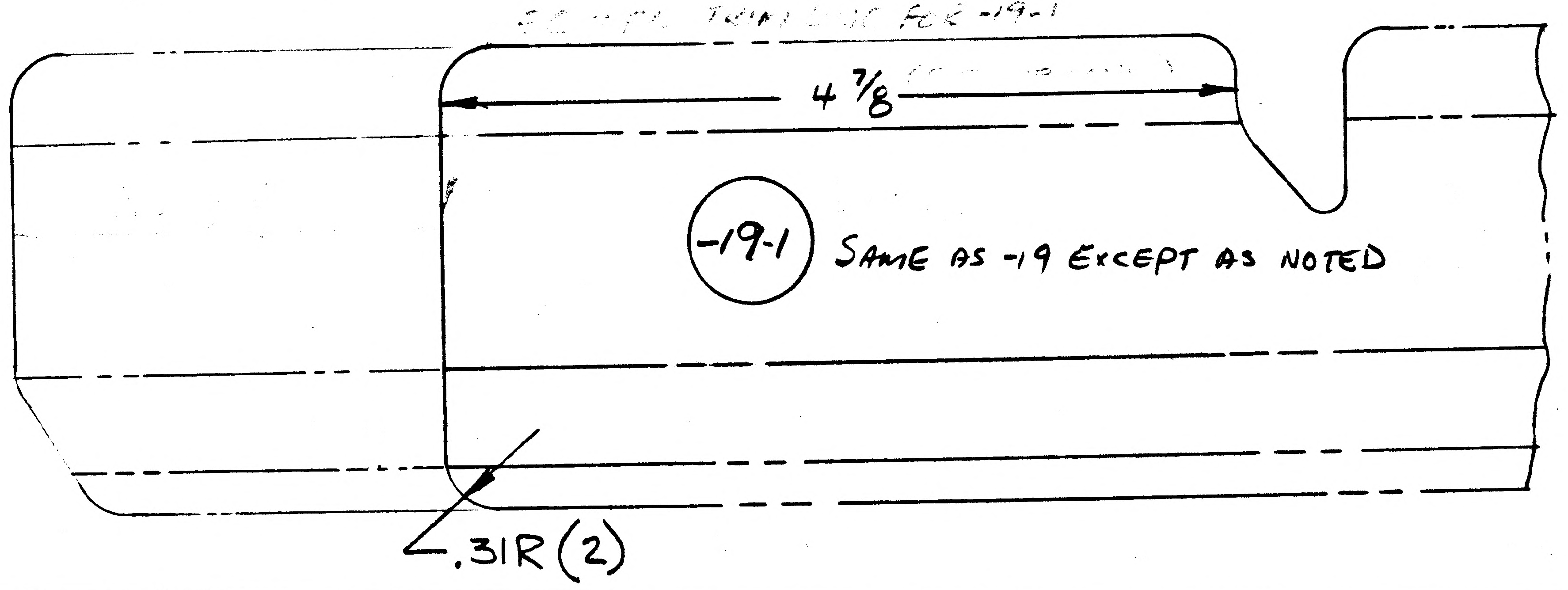
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18692 | EO NO. A2
CONTROL INFO NO. LDW 280B8970

RESTRICT -15, -16, -17 & -18 TO DVT (70) EFFECTIVITY. WAS LM10(40) THRU LM14(44), LTA-3 DR/1 (460) & LTA-11 (23) & DVT (70)

CREATE -19-1 BY REWORKING -19 EFF LM10 (40) THRU LM14 (44), LTA-3 DR/1 (460) & LTA-11 (23) 1/MOD N/A LDW280-60522.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 52 (5)

REASON FOR EO: REMOVE STIFFENERS TO ALLOW INSTL OF BATTERY SPRT STRUCTURES

DESCRIPTION OF EO: ADDED -19-1 REMOVED -19. RESTRICTED EFF OF -15, -16, -17 & -18 TO DVT(70) BY REMOVING LM10(40) - LM14(44), LTA-3DR/1(460), LTA-11(23)

GAEC EO RELEASE: 10/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) - LM14(44) LTA-11(23) & LTA-3 DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		-19	-15, -17 -16, -18	DATE	10/23/69			10-21-69	10/23/69		10/27/69
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-O/S-STIFFENER-UPPER DECK	LDW 280-18692	A2

CDR 11/30/69
ISSUED BY G. CHAN X86046 / G. HANSMANN SECTION UDL GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 1859	
CONTROL INFO NO. LM-5-22301			

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG.	A5

01

NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890	
REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372	DESCRIPTION OF EO: ON - *, QTY ■ REQ'D/VEHICLE WAS ▲			GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		DVT (70)		✓		NOT REQ'D	

APPROVED BY					CR			
DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

LDW280-18693

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11 (23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14 (44)	1 EA
		LM-13(43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60520	LM-10 (40)	1 EA

PART NO. LDW280-18693-11, -12, -13 & -15
GAEC SCH NO. 50-6

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED
LAST DASH NO. USED -15
GRUMMAN REL INFO
PRIM NO. 207 JC(001) ME-16 10/9/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994, PKG 50

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY J. BIANCHINO
LAYOUT BY G. CHAN G.C.
CHECKED BY 9-25-69
GP LEADER 10-6-69
VEH DES INT 10-8-69
STRUCTURES N. MARKELOFF 10-9-69
STRUCTURES 10/7/69
PROJ ENGR 10/9/69
REL GROUP 10/9/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL-
DESCENT STAGE - R.H. UPPER DECK
H2O TRUSS FTG SPRT

SIZE B
CODE IDENT NO. 26512
LDW280-18693
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

COR 101769

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18693-15	E	ZEE	AL. ALLOY SH	QQ-A-250/12	7075	.050 × 4 × 8	T6	88	
								LDW280-18693-13		DOUBLER			7075-T6	.056 × 2 × 4	NONE		
								LDW280-18693-12		CHANNEL			7075	.040 × 4 × 17	T6		
								LDW280-18693-11	E	CHANNEL	AL. ALLOY SH	QQ-A-250/12	7075	.040 × 4 × 17	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL. HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18693

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

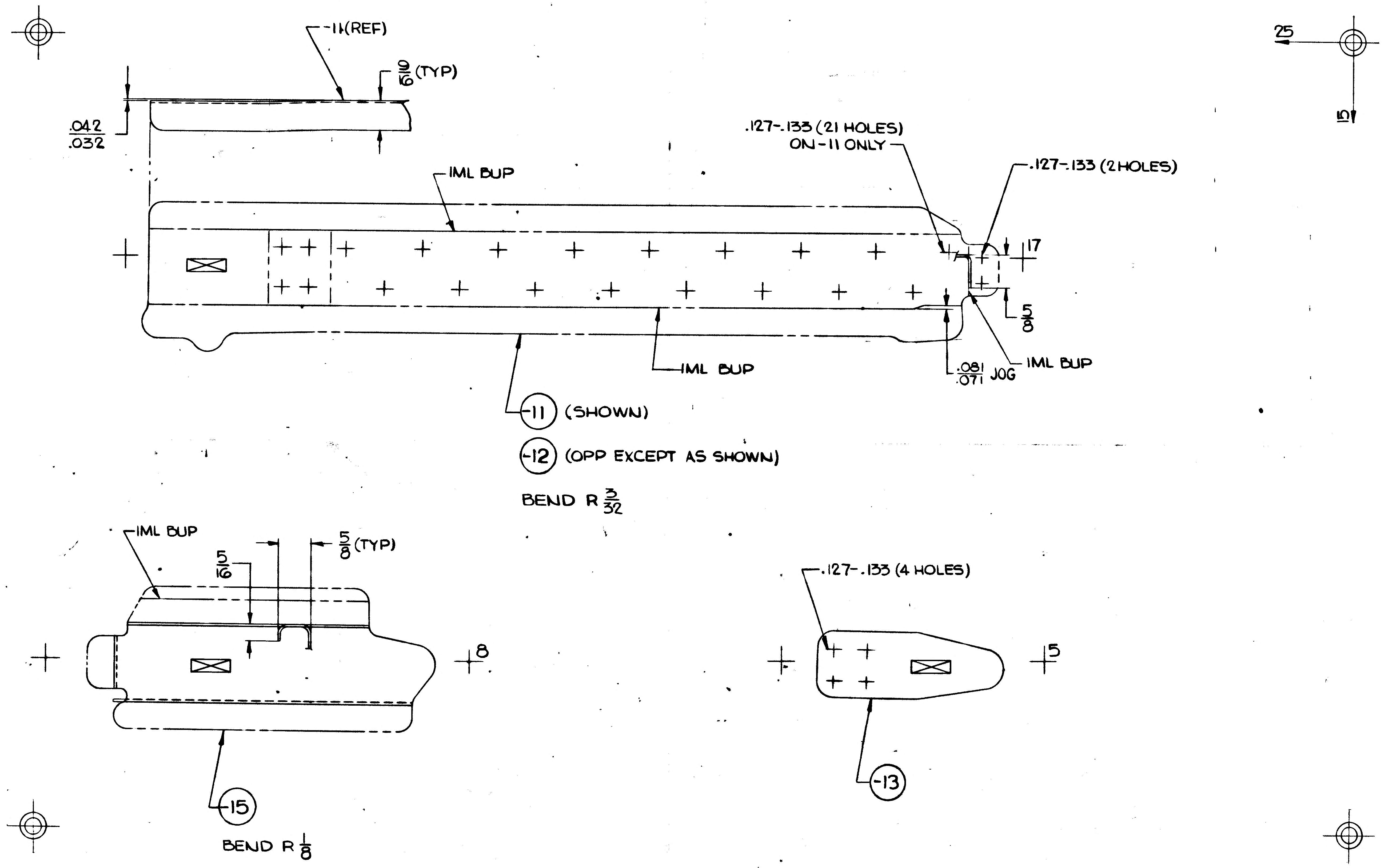
NAS 9-1100

LDW280-18693

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE :

1. NO TOOLING HOLES PERMITTED IN PARTS



-11 (REF)
5/16 (TYP)
.042 .032
.127-.133 (21 HOLES) ON -11 ONLY
.127-.133 (2 HOLES)
IML BUP
.17
5/8
IML BUP
.081 .071 JOG
IML BUP
-11 (SHOWN)
-12 (OPP EXCEPT AS SHOWN)
BEND R 3/32
25
10
IML BUP
5/16
5/8 (TYP)
8
-15
BEND R 1/8
.127-.133 (4 HOLES)
5
-13

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18693
SCALE FULL		SHEET 3.C0

FOR PHOTO REPRODUCTION

K2

NAS 9-1100

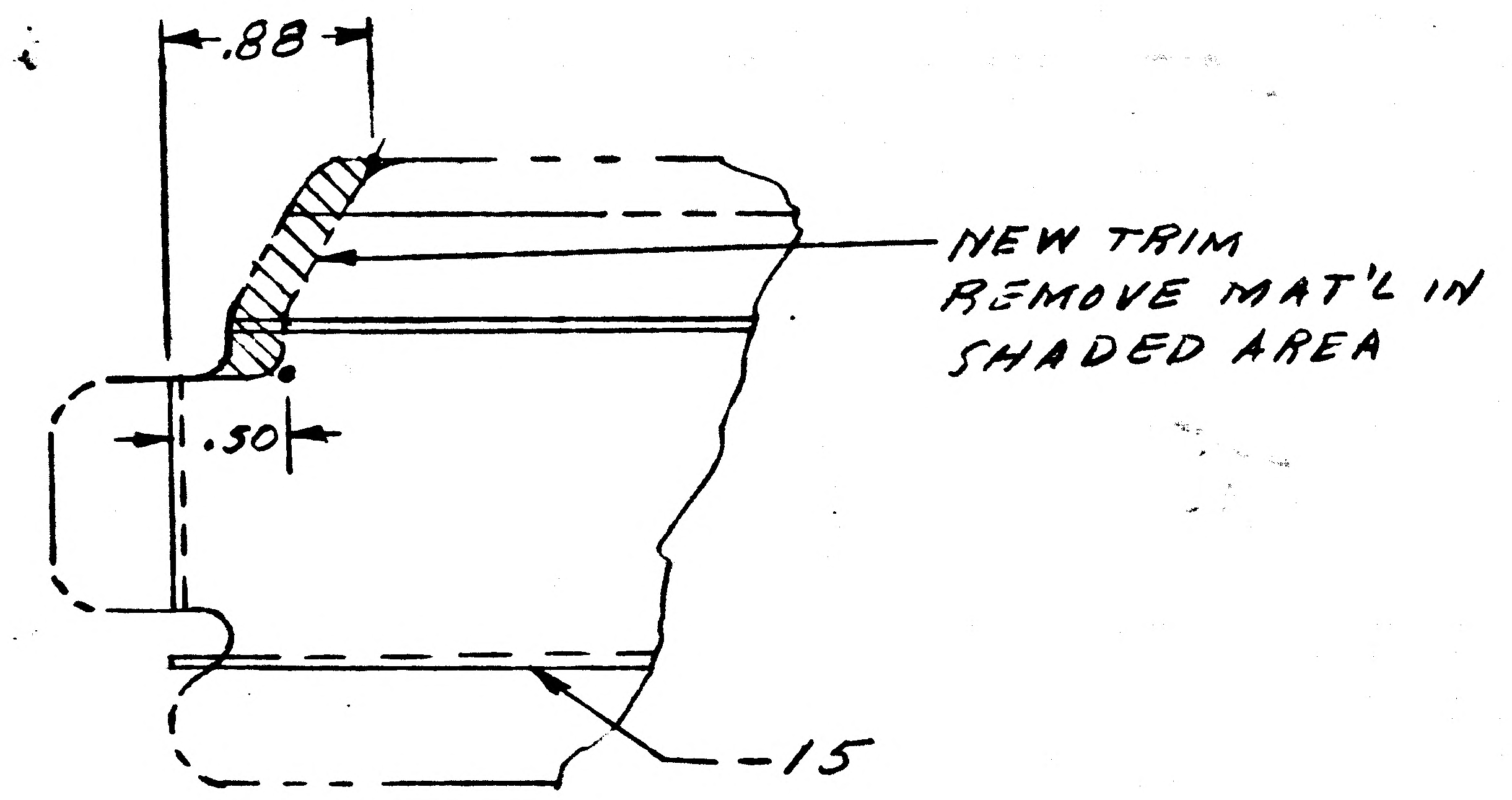
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18693	EO NO. A1
CONTROL INFO NO. LM-5-23260	



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994

REASON FOR EO

PROVIDE CLEARANCE FOR PLATE NUT ON INSTL.

DESCRIPTION OF EO

TRIMMED -15

Ⓒ GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10 (40) THRU LM-13(43)		

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☑ REWORK ☐ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~MGT.~~
APPROVED BY					KC			
DATE	9-8-70			9/3/70	9/2/70	9/2/70	9-10-70	9/2/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL ~ D/S ~ R. H. UPPER DECK ~ H2O TRUSS FTG. SPRT.	LDW280-18693	A1

ISSUED BY LIAISON C. COSMA X86755 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18698

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW2[illegible]-00522	[illegible] 23)	1EA
↕	↕	LTA-3DR/1(4[illegible])	1EA
		LM [illegible]	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW2[illegible]-00522	LM-10(40)	1EA

PART NO. LDW280-18698-11,-12,-13,-15,-17,-19 & -20

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-20	PRIM NO. 207	SK(001) ME-16 8/2/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890,CCA2205
ECP A120

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	HERB. SCHWETER 6/23/69
LAYOUT BY	J. LANG 7/[illegible]
CHECKED BY	JD COBB 7-18-69
GR. LEADER	[illegible] 7-24-69
VEH DES INT	[illegible] 7/25/69
STRUCTURES	NM 7/25/69
STRUCTURES	

PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I. NEW YORK

ZEE
DESCENT STAGE ~+Z UPPER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18698
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18698-20	E	ZEE	AL ALY SH	QQ-A-250/12	7075W	.063 x 5 x 15	T6	88	
		-19						.063 x 5 x 15			
		-17						.063 x 5 x 15			
		-15						.063 x 5 x 16			
		-13						.063 x 5 x 25			
		-12						.063 x 5 x 40			
		LDW280-18698-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075W	.063 x 5 x 40	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	[illegible]

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18698

SCALE NONE

SHEET 2.00

9

ENG 77.2 7-65

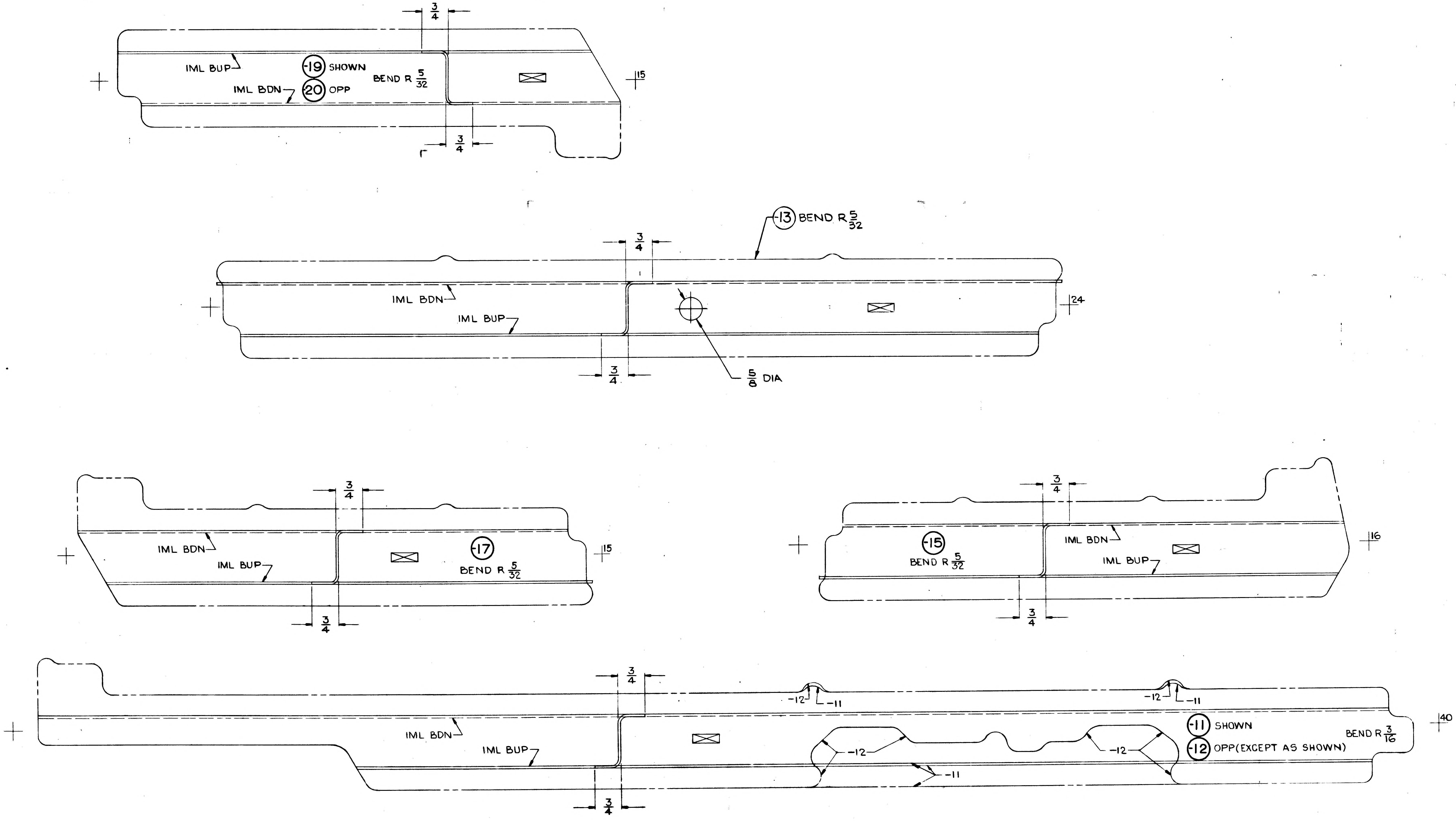
01

NAS 9-1100

overlay & [illegible]

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



35
30
3/4
IML BUP
-19 SHOWN
IML BDN
20 OPP
BEND R 5/32
15
-13 BEND R 5/32
IML BDN
IML BUP
5/8 DIA
24
IML BDN
IML BUP
-17
BEND R 5/32
15
-15
BEND R 5/32
IML BDN
IML BUP
16
-12
-11
IML BDN
IML BUP
-11 SHOWN
-12 OPP (EXCEPT AS SHOWN)
BEND R 3/16
40

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18698

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

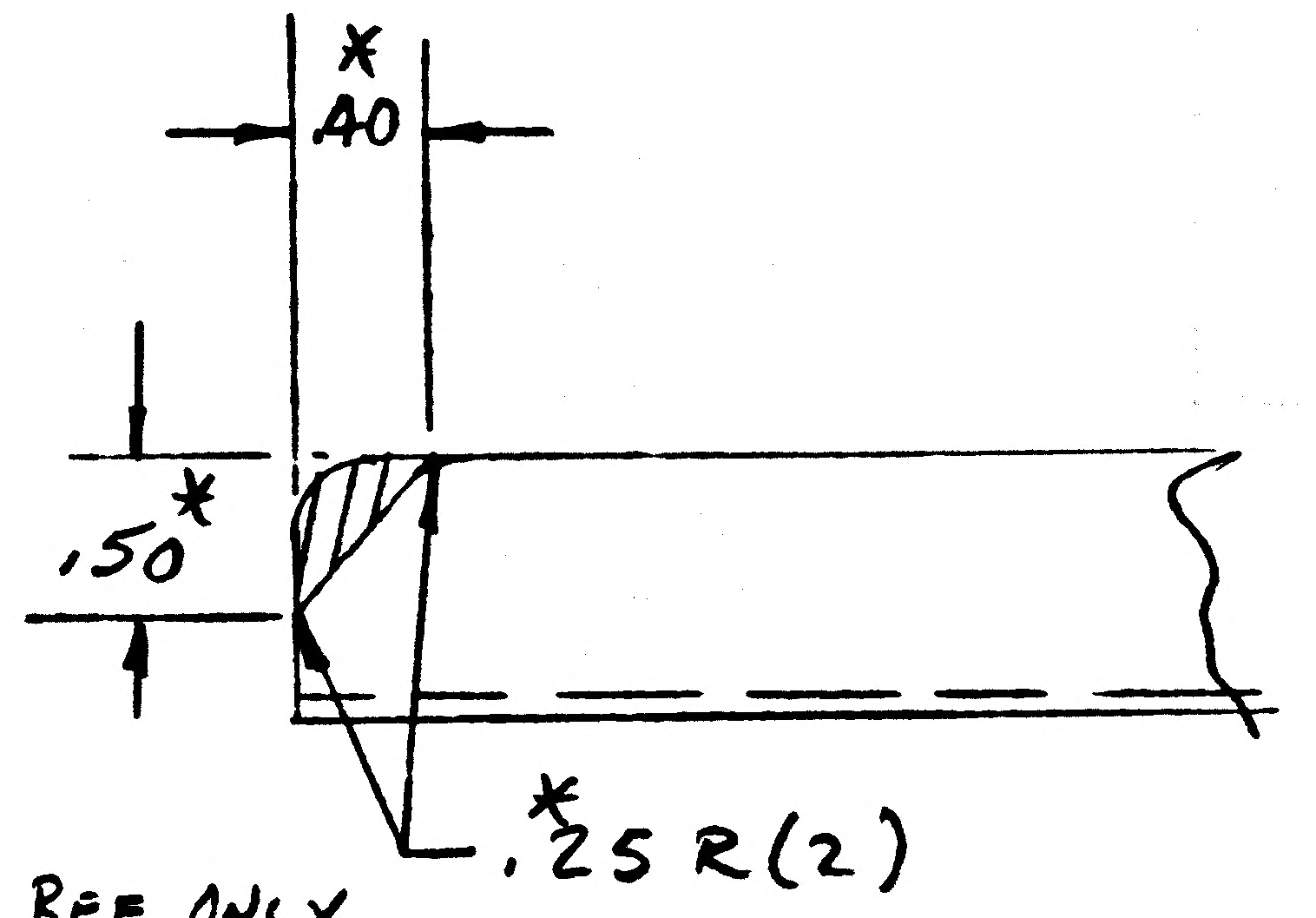
K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18698 EO NO. A1
CONTROL INFO NO. LDW280B8963

ON-11 & -12 TRIM SHADED AREA AS SHN



* DIMENSION FOR REF ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PK52

REASON FOR EO: REMOVE INTERFERENCE WITH FITH SHIELD

DESCRIPTION OF EO: TRIMMED -11 & -12

GAEC EO RELEASE (5): 9-30-69; 9/30/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU 14(44)	
LM		LTA3DR11(46)	LTA11(23)

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		✓		APPROVED BY					N.M		
				DATE	9/25/69			9-25-69	9-26-69		9/29/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S + Z UPPER DECK	LDW280-18698	A1

CDR 100364

ISSUED BY Don Ragas 86046 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 1739
CONTROL INFO NO. LDW280B8451

FOR DWGS & DASH NOS * LISTED BELOW REMOVE FROM B/M, F/D & M/B
N/A LDW280-60522

DRAWING	DASH NO *	DRAWING TITLE	CHANGE NO
LDW280-18698	-15	SEE DRAWING	A2
LDW280-18699	-13	SEE DRAWING	A2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 52 (5)

REASON FOR EO: REMOVE STIFFENER TO ALLOW INSTL OF GOX TANK SPRT STRUCT.

DESCRIPTION OF EO: REMOVED (*)

GAEC EO RELEASE: JK 10/24/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44) LTA-8 DR/1(440) LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			*

APPROVED BY						NM			
DATE	10/23/69			10-21-69	10/23/69			10/24/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	1739

CDR 11/30/69
ISSUED BY G. CHAN / G. HANSMANN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18699

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11 (23)	1 EA
		LTA-3DR/1 (460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA
PART NO. LDW280-18699-11, -13 & -15		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REF INFO		
LAST DASH NO. USED	-15	PRIM NO.	VK(001)	
		207	ME-16 8/2/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD3890 CCA2205 ECPA120

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	H. SCHWETER 6/25/69	~~RELIABILITY~~	—
LAYOUT BY	J. LANG		
CHECKED BY	J.D. COBB 6/27/69		
GR. LEADER	7-23-69		
VEH DES INT	J. Pusater 7/24/69		
STRUCTURES	N.M. 7/26/69	PROJ ENGR	7/28/69
STRUCTURES		REL GROUP	8/1/69
~~WEIGHTS~~	—		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ +Z UPPER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18699

SCALE NONE SHEET 1-00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18699-15	E	CHANNEL	AL ALY SH	QQ-A-250/12	7075W	.050 × 3 × 16	T6	88	
		-13	↕	ZEE	↕	↕	↕	.040 × 4 × 16	↕	↕	
		LDW280-18699-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075 W	.040 × 3 × 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18699

SCALE NONE SHEET 2.00

ENG 77.2 7-65

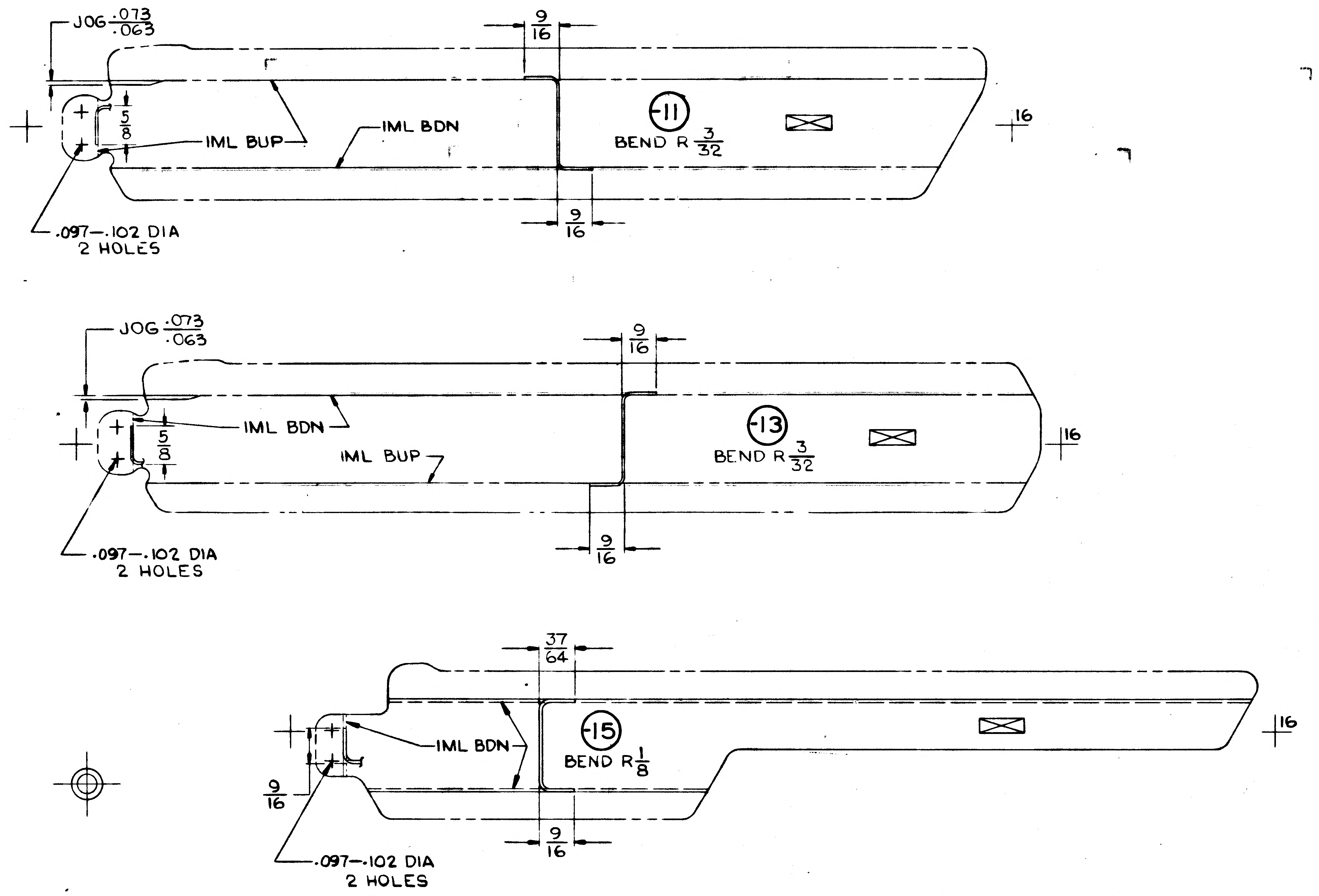
0 1

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



JOG .073 / .063
9/16
5/8
IML BUP
IML BDN
-11
BEND R 3/32
16
.097-.102 DIA 2 HOLES
JOG .073 / .063
IML BDN
IML BUP
-13
BEND R 3/32
37/64
-15
BEND R 1/8

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18699
SCALE FULL		SHEET 3.00

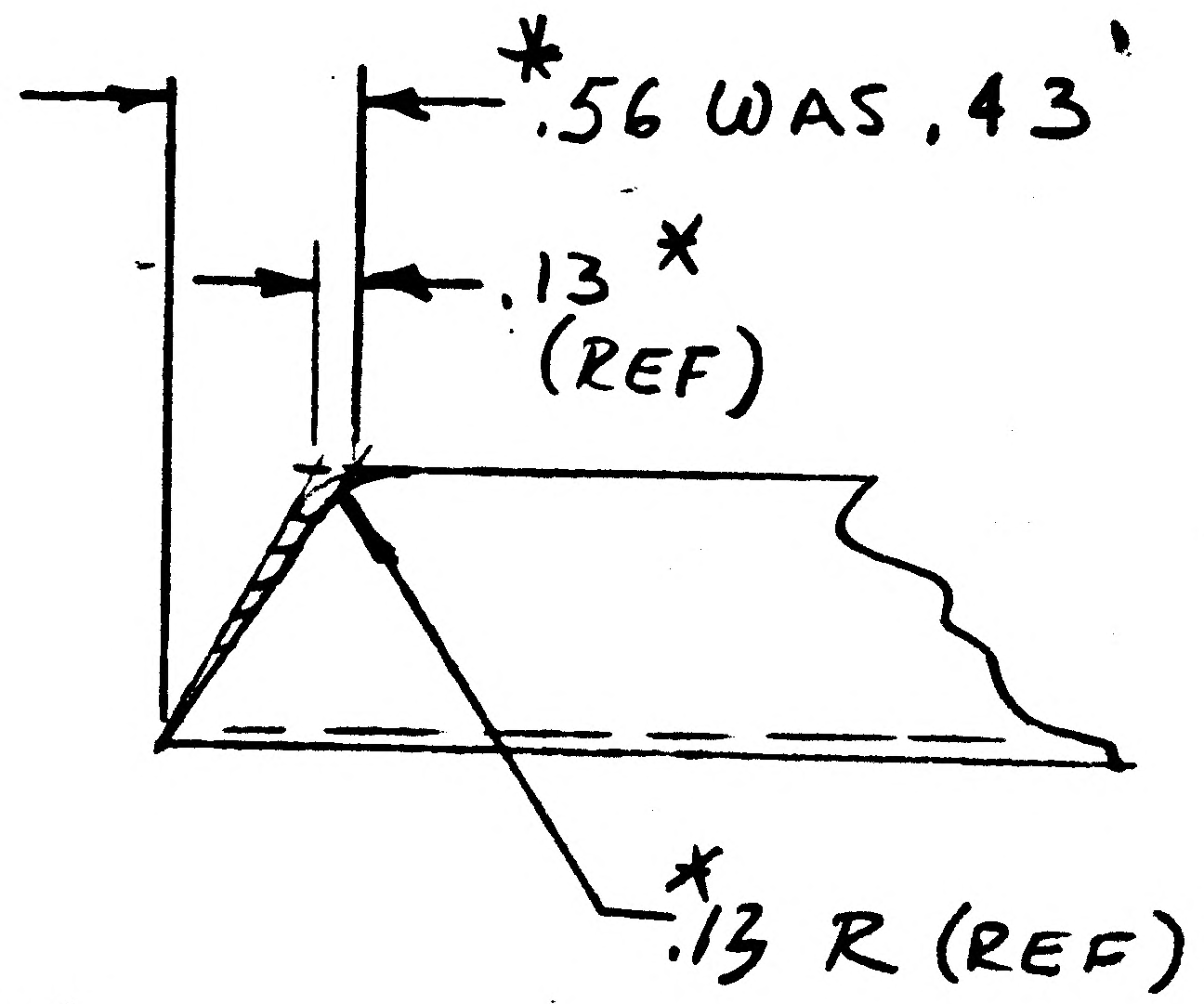
FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18699		EO NO. A1
CONTROL INFO NO. LDW280B8962		

ON-15 TRIM SHADED AREA AS SHN:



* DIMENSION SHN REF ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PK 52

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO REMOVE INTERFERENCE WITH FITH SHIELD	TRIMMED -15	(5) 9-?-69 JK 9/30/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU14(44)	
		LTA 5B2/1 (460) LTA11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP	APPROVED BY	[illegible]			[illegible]	NM		
				DATE	9/26/69			9-25-69	9-26-69		9/29/69
					UD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S- +Z UPPER DECK	LDW280-18699	A1

CDR 100369
ISSUED BY Don Ragas X86046 SECTION UD1 GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 EO NO. 1739
CONTROL INFO NO. LDW 280B 8451

FOR DWGS & DASH NOS * LISTED BELOW REMOVE FROM B/M, F/D & M/B
N/A LDW280-60522

DRAWING	DASH NO *	DRAWING TITLE	CHANGE NO
✓ LDW280-18698	-15	SEE DRAWING	A2
✓ LDW280-18699	-13	SEE DRAWING	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PKG 52 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REMOVE STIFFENER TO ALLOW INSTL OF GOX TANK SPRT STRUCT.	REMOVED (*)	Ⓡ JK 10/24/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44) LTA-8DR/1(460)	
		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			*

APPROVED BY				GA	NM			
DATE	10/23/69			10-21-69	10/23/69		10/24/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	1739

CDR 11/30/69
ISSUED BY G. CHAN / G. HANSMANN X86046 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

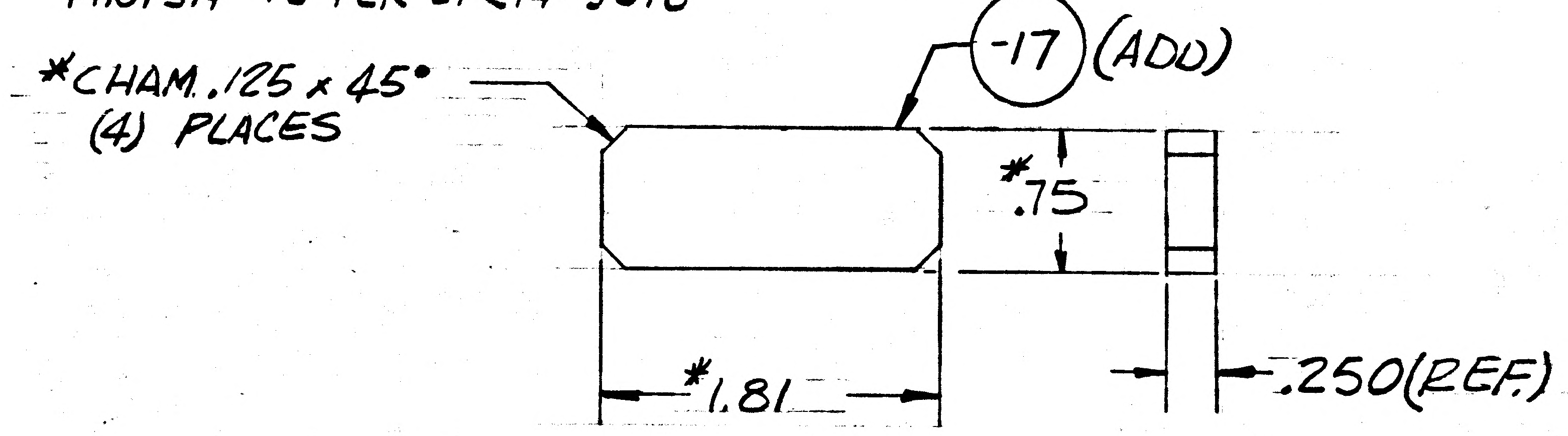
DWG. NO. LDW280-18699 EO NO. A3

CONTROL INFO NO. LDW280 B9463

CREATE -17, FILLER, AL ALLOY, QQ-A 250/4, 2024-T351, PROCESS-NONE, N/A LDW280-60537

STOCK SIZE: .250 THICKNESS, I&T(E)

FINISH * 76 PER LPC14-9010



* DIMS FOR ENG. REF. ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5322 PKG 50 (5)

REASON FOR EO: MODIFICATION OF QUAD I PAYLOAD INTERFACE

DESCRIPTION OF EO: ADDED -17

GAEC EO RELEASE: JK 12/5/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
		LTA-3DR/1(460)	
		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD. REWORK SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					OK NM			
DATE	12/4/69			12/4/69	12/4/69		12/4/69	12/4/69

PRIORITY: C

DRAWING TITLE: ZEE - D/S, +Z UPPER DECK

DRAWING NO.: LDW280-18699

EO NO.: A3

12/5/69 ISSUED BY J.TAVARES / R. CLARK x86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18699

EO NO. A4

CONTROL INFO NO. LM-5- 22144

THIS IS A REVISION OF EO A3

FINISH #76 PER LPC 14-9010 (S/B) FINISH #76 PER LSP14-9010.

ADD TO -17 :
(1) REQ'D/MOD.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 5322

REASON FOR EO: LDC 14-9010 S/B LSP 14-9010 & QUANTITY PER/MOD OMITTED.

DESCRIPTION OF EO: REF EO A3
FINISH #76 PER LSP 14-9010 (WAS) FINISH #76 PER LPC 14-9010.
ADDED: (1) REQ'D PER MOD. FOR -17

GAEC EO RELEASE (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
		LTA-3 DR/1 (460)	
		LTA-11(23)	

DRAWING CHANGE REQD: ✓ REVISE DWG

DISPOSITION OF PARTS: RECORD EO NOT REQ'D; REWORK; SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	12-17-69			12/17	12/11	12-11-69	[illegible]
	VDI						

PRIORITY: C

DRAWING TITLE: ZEE ~ D/S, +Z UPPER DECK

DRAWING NO.: LDW 280-18699

EO NO.: A4

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18700

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11 (23)	1 EA
	LDW280-60522	LTA-11 (23)	1 EA
	LDW280-60523	LTA-3DR/1	1 EA
	LDW280-60522	(460)	1 EA
	LDW280-60523	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
	LDW280-60523	LM-10(40)	1 EA
	LDW280-60522	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA

PART NO. LDW280-18700-13 & -14 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	1 EA
		LTA3DR/1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA

PART NO. LDW280-18700-11 -12,-15,-17,-18,-19,20,21&22 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -22

GRUMMAN REL INFO

PRIM NO.	J/C(001)		
207	ME-16	8/8/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890, CCA2205

ECP A120

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY	F. ZUKAS 6-21-69	RELIABILITY	
LAYOUT BY	J. LANG		
CHECKED BY	J.G. SZALWINSKI 6-26-69		
VDI	7/25/69		
GP LEADER	Thorjussen 7-24/69		
STRUCT		PROJ ENGR	8/7/69
STRUCT	NM 8-5-69	REL GROUP	R. Marsh
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE - FORWARD
UPPER DECK

SIZE B | CODE IDENT NO. 26512 | LDW280-18700

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-66

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18700-22	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.050x2x16	T6	88	
		-21						.050x2x16			
		-20						.036x2x17			
		-19						.036x2x17			
		-18						.040x2x7			
		-17						.040x2x7			
		-15						.040x2x6			
		-14						.036x2x16			
		-13						.036x2x16			
		-12						.036x2x16			
		LDW280-18700-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.036x2x16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18700

SCALE NONE

SHEET 2.00

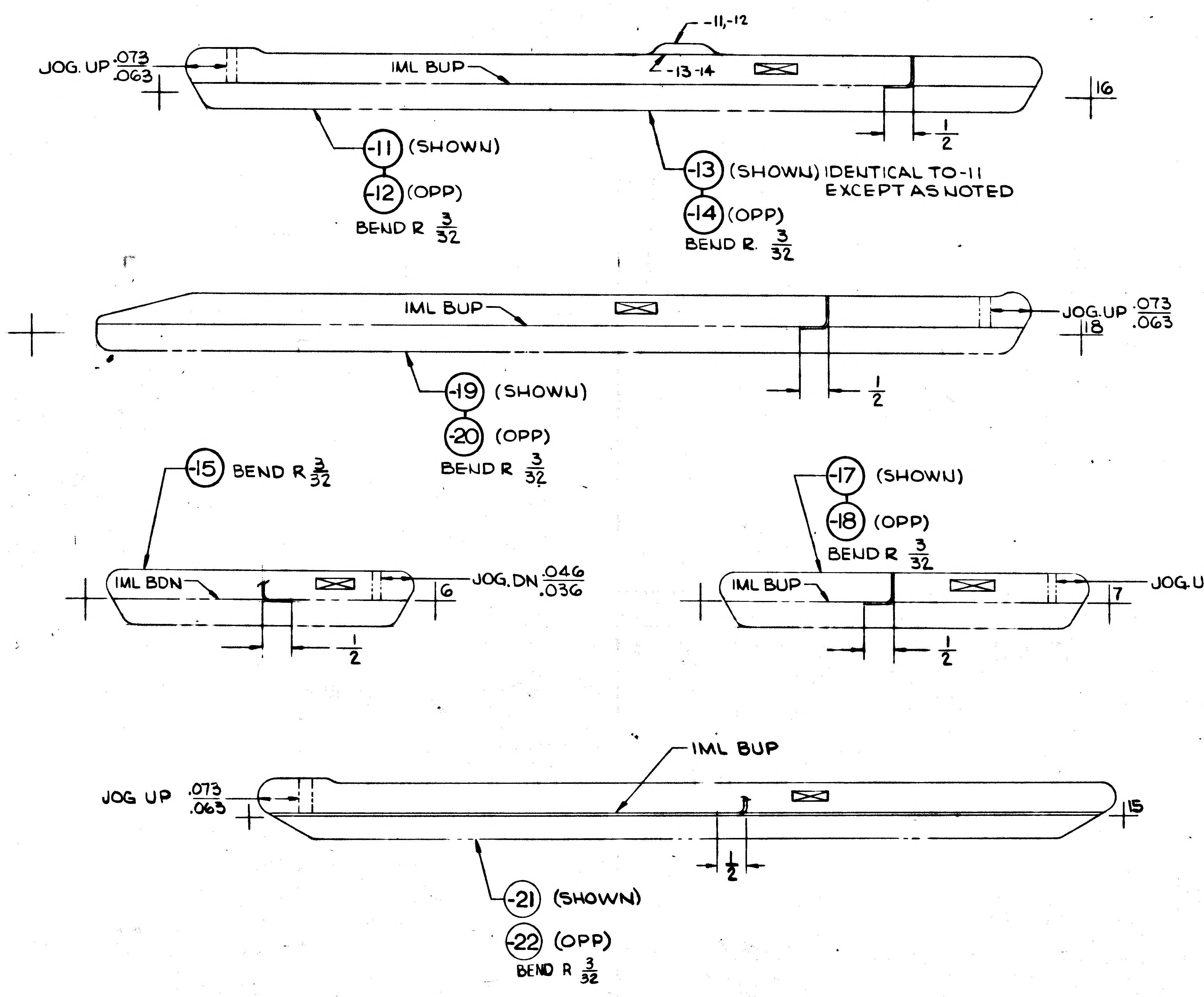
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


JOG. UP .073 .063
IML BUP
-11,-12
-13-14
16
1/2
-11 (SHOWN)
-12 (OPP)
BEND R 3/32
-13 (SHOWN) IDENTICAL TO -11 EXCEPT AS NOTED
-14 (OPP)
BEND R. 3/32
IML BUP
JOG. UP .073 .063
18
1/2
-19 (SHOWN)
-20 (OPP)
BEND R 3/32
-15 BEND R 3/32
IML BDN
6
JOG. DN .046 .036
1/2
-17 (SHOWN)
-18 (OPP)
BEND R 3/32
IML BUP
7
JOG. UP .046 .036
1/2
IML BUP
JOG UP .073 .063
15
1/2
-21 (SHOWN)
-22 (OPP)
BEND R 3/32

25
15

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18700
SCALE FULL		SHEET 3.00

FOR 2 PHOTO REPRODUCTION 1 K2

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T. (70) EFFECTIVITY, FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700		A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747		A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 53 PG 3 & 4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. # 6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T. (70) EFF.

GAEC EO RELEASE: 9-12-69; VK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK, SCRAP
APPROVED BY: BJT — DATE 9-3-69 — VDI
SUPPORT; RELIAB. GROUP; GROUP LEADER 8/21/69; STRESS GROUP 9/3/69; LIAISON ENGRG; PROJ ENGRG 9/11/69; GOVT 9/18/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

0,1

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 1859
CONTROL INFO NO. LM-5-22301		

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890		

REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372

DESCRIPTION OF EO: ON -*, QTY ■ REQ'D/VEHICLE WAS ▲

GAEC EO RELEASE: Ⓡ

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

LDW280-18701

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60523	LM-10(40)	1 EA
PART NO. LDW280-18701-11,-13,-15,-16,-17,-18 & -19		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO. 207	VK(001) ME-16	8/4/9

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3890	

ECP A120 PKG. 53

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E. GREINER 6/28/69		
LAYOUT BY	LEIFER		
CHECKED BY	H. HICKS		
GP LEADER	7/31/69		
VEH DES INT	Thoyerson 7-31-69		
STRUCT		PROJ ENGR	8/2/69
STRUCT	NM 8-2-69	REL GROUP	March 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE - AFT UPPER DECK
PROPELLANT TANK CUTOUT ~ FRAME

SIZE	CODE IDENT NO.	
B	26512	LDW280-18701

SCALE NONE
SHEET 1.00 OF 3

CDR 8-22-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18701-19	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.063x4x25	T6	88	
		-18		ZEE				.063x5x15			
		-17		ZEE				.063x5x15			
		-16		ZEE				.071x5x54			
		-15		ZEE			7075	.071x5x54	T6		
		-13		DOUBLER			7075-T6	.080x19x53	NONE		
		LDW280-18701-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080x35x53	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

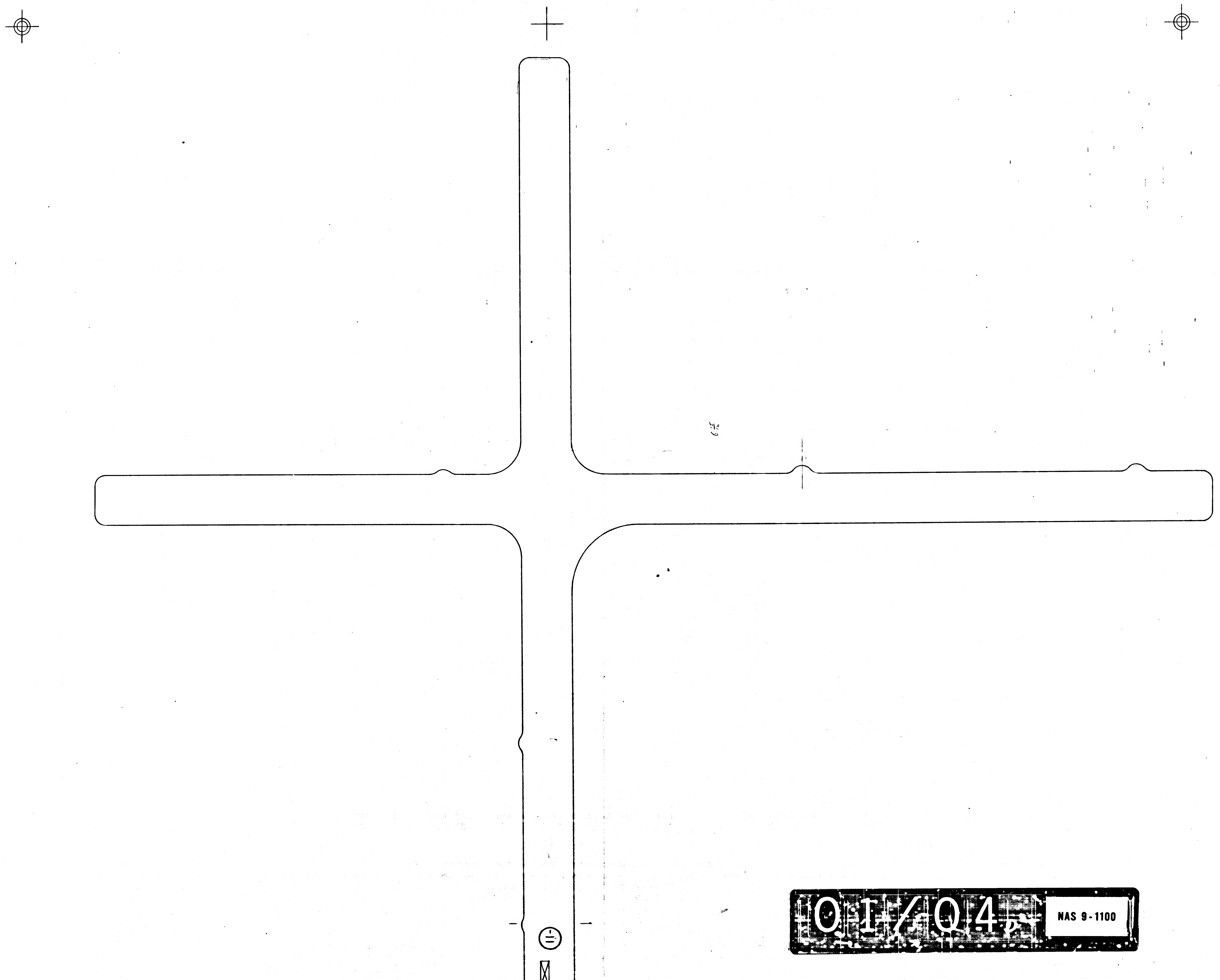
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18701
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


A
B
C
D
E
11
10
9
8
Q1/Q4

CODE IDENT NO 26512

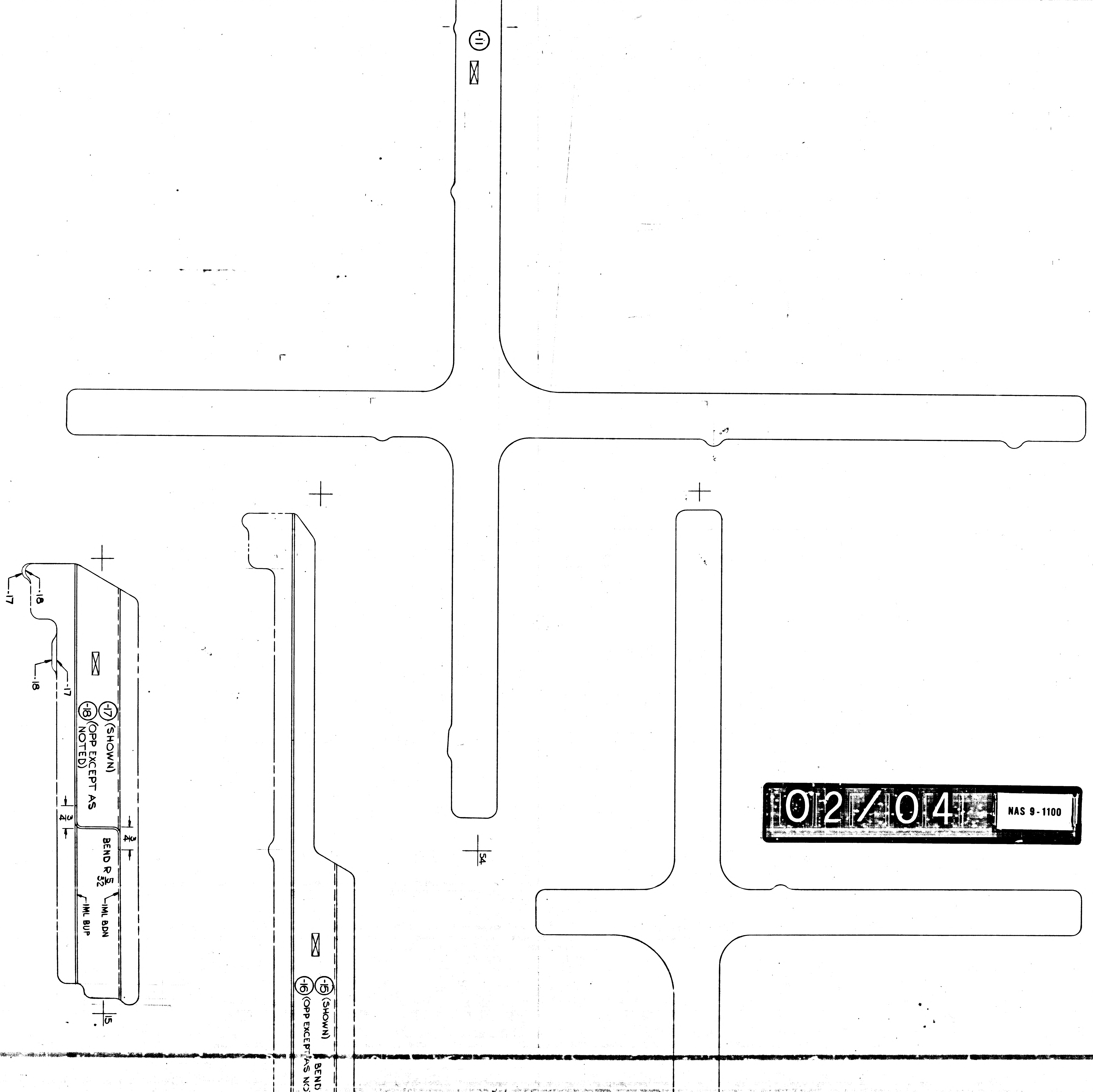
DWG NO LDW280-18701

SHEET 3

FRAME 1

FRAME 2

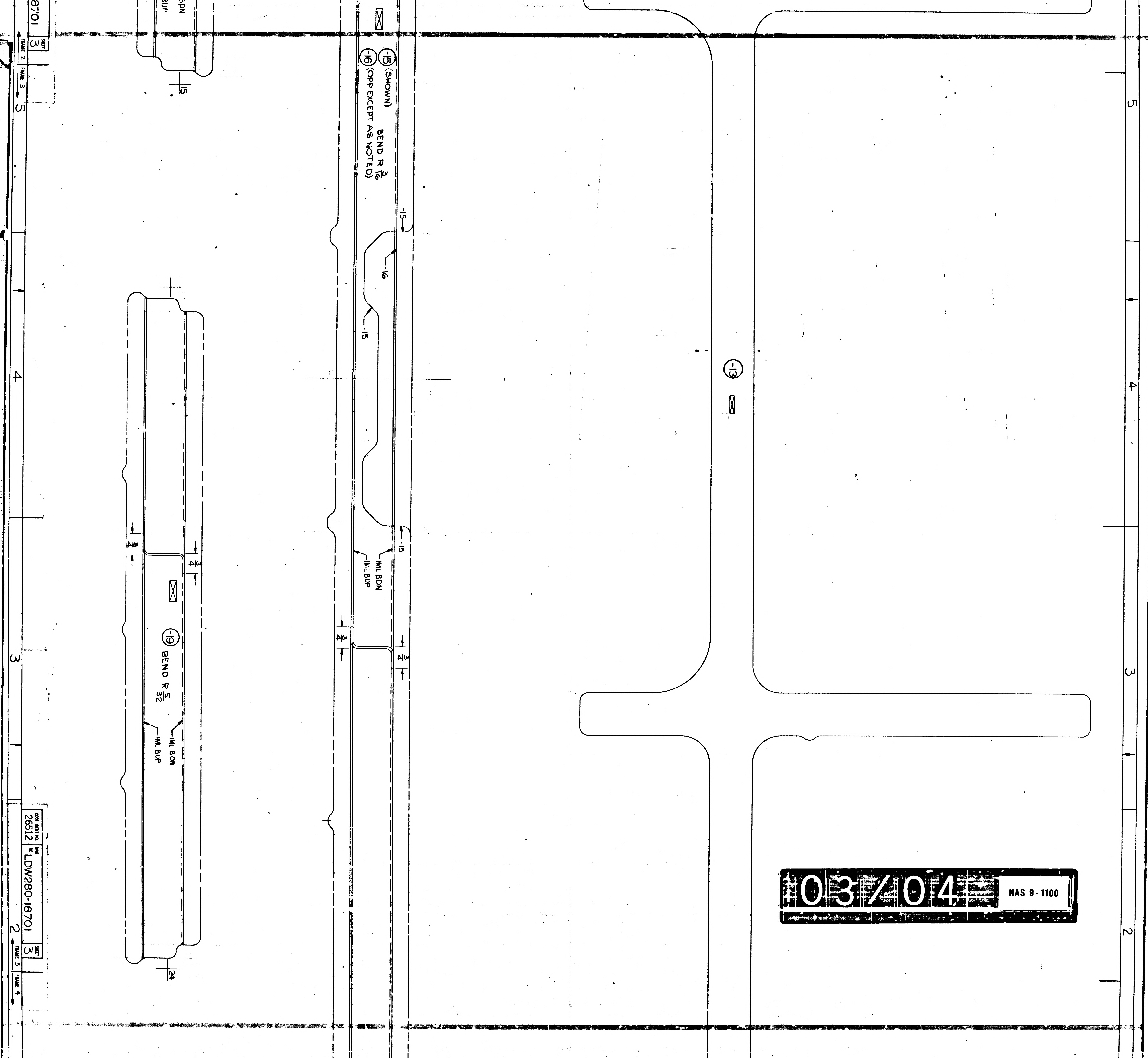
NAS 9-1100


-11
-17 (SHOWN)
-18 (OPP EXCEPT AS NOTED)
-17
-18
-18
-17
3/4
3/4
BEND R 5/32
IML BDN
IML BUP
15
-15 (SHOWN)
-16 (OPP EXCEPT AS NO
BEND
54

7C1 3
FRAME 1 FRAME 2
8
7
6
5

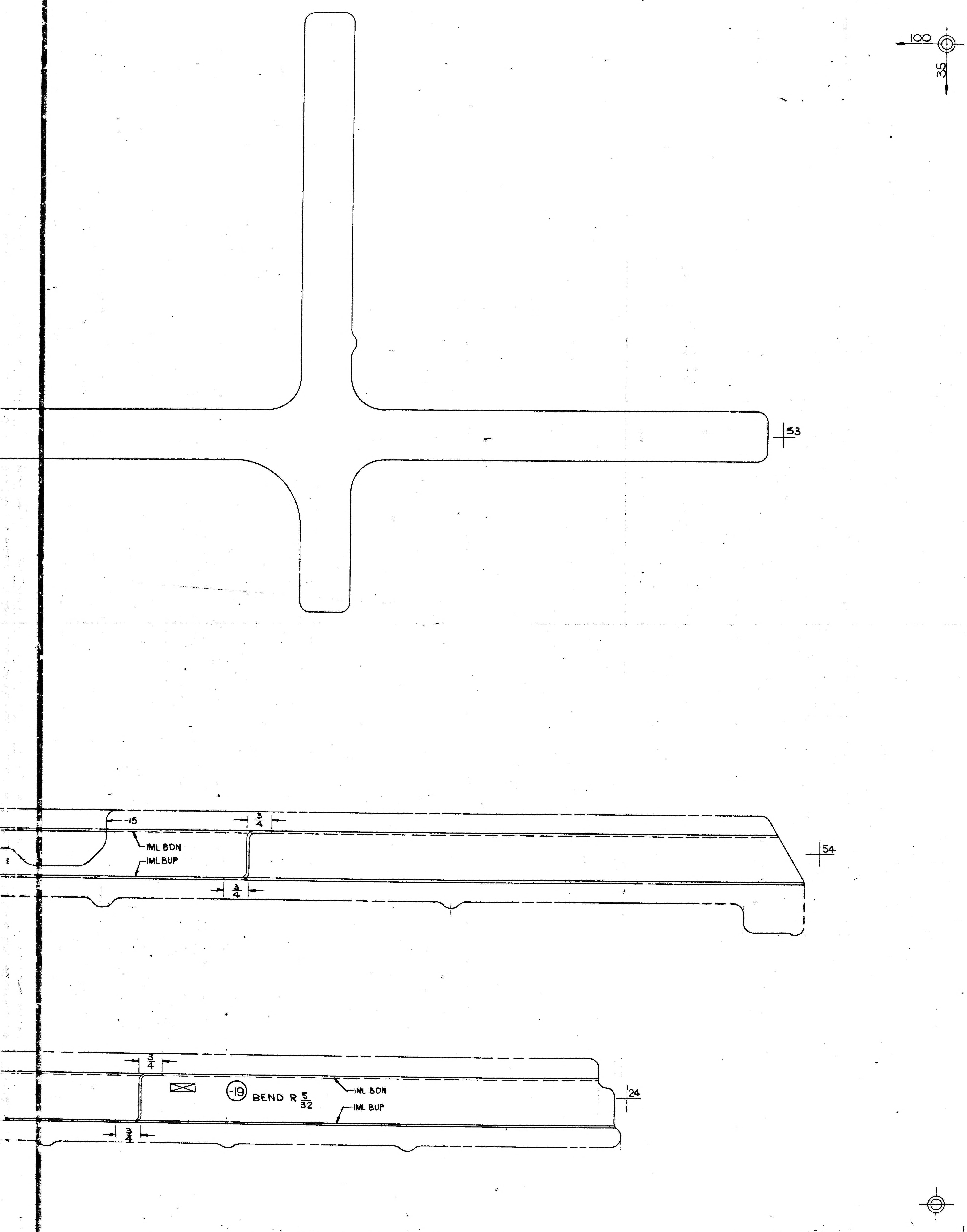
CODE IDENT NO 26512
DWG NO. LDW280-18701
SHEET 3
FRAME 2 FRAME 3

02/04 NAS 9-1100



18701
SHEET 3
FRAME 2
FRAME 3
BDN
BUP
15
-15 (SHOWN) BEND R 3/16
-16 (OPP EXCEPT AS NOTED)
-15
-16
-15
-15
IML BDN
IML BUP
3/4
3/4
-19 BEND R 5/32
IML BDN
IML BUP
3/4
3/4
24
-13
5
4
3
2
CODE IDENT NO 26512
DWG NO LDW280-18701
SHEET 3
FRAME 3
FRAME 4

03/04 NAS 9-1100



SUPPLEMENTARY DATA * UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINATIONS IS ± 1/32	✓

DWG SIZE 40 x 112

PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA 42 x 122 = 36 SQ FT

04704

NAS 9-1100

LDW280-18701

LDW280-18701

CODE IDENT NO. 26512	DWG NO. LDW280-18701	SHEET 3

FRAME 3 FRAME 4

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
K	26512	LDW280-18701	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE NO.
LDW280-18701	SEE DWG	A1
LDW280-18700	↑	A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747	↓	A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 53 PG3&4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. *6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T.(70) EFF.

GAEC EO RELEASE: 9-12-69
9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T.(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK, SCRAP)

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	9-3-69			8/21/69	9/8/69		9/11/69	9/18/69
	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

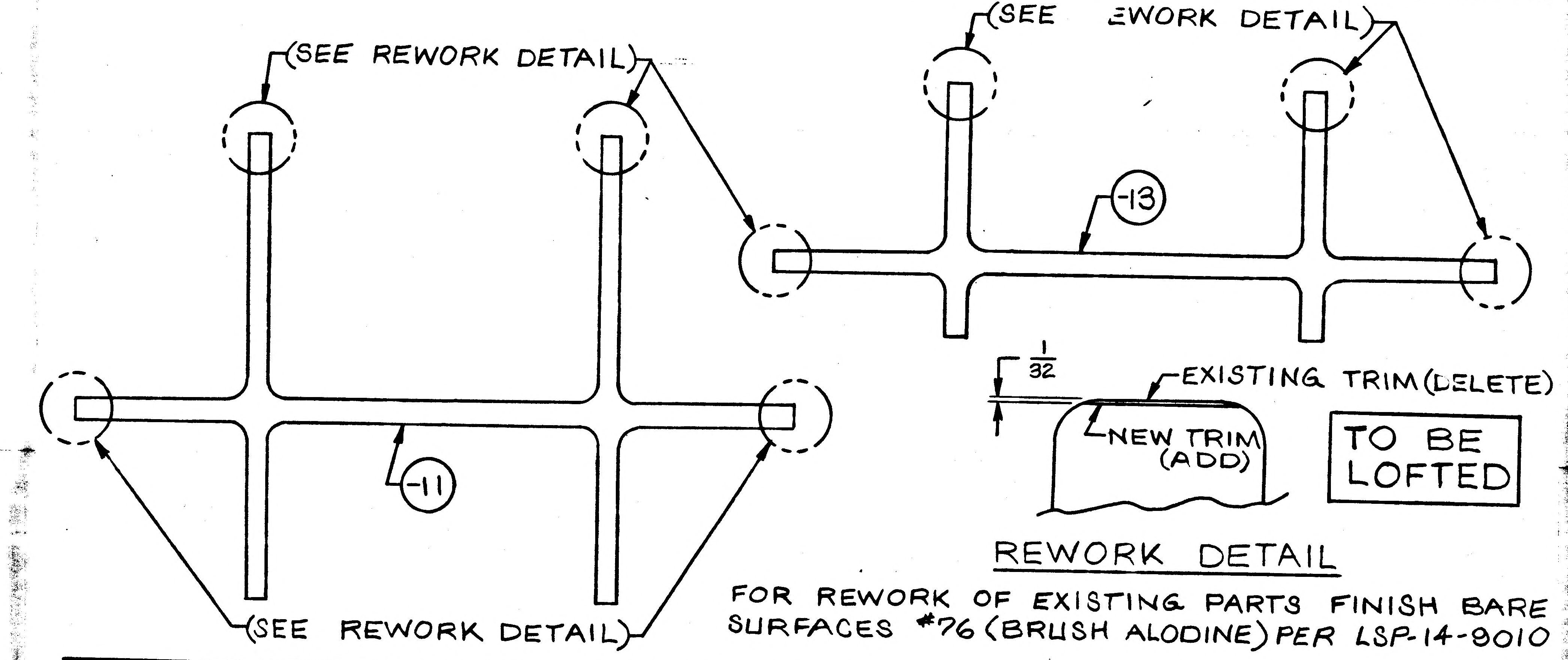
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18701 · EO NO. A2

CONTROL INFO NO. LM-2-5669


(SEE REWORK DETAIL)
(SEE REWORK DETAIL)
-13
-11
(SEE REWORK DETAIL)
1/32
EXISTING TRIM (DELETE)
NEW TRIM (ADD)
TO BE LOFTED

REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #76 (BRUSH ALODINE) PER LSP-14-9010

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSEMBLY

DESCRIPTION OF EO: IN FLD/DWG FOR -11 & -13 REVISED TRIM

R GAEC EO RELEASE (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44) LTA-11 (23) LTA-3DR/1 (460) DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					KC			
DATE	11/12/69			11/4/69	11/4/69	11-4-69	11/5/69	11/5/69
	VDI							

PRIORITY C

DRAWING TITLE: DOUBLER-D/S-AFT UPPER DECK PROPELLANT TANK CUTOUT-FRAME

DRAWING NO. LDW280-18701

EO NO. A2

ISSUED BY LIAISON J. MALONEY 11/3/69 X3604 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 1859
CONTROL INFO NO. LM-5-22301

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG.	A5

01 NAS 9-1100

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒ LCD 3890									
REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372					DESCRIPTION OF EO: ON -*, QTY ■ REQ'D/VEHICLE WAS ▲									GAEC EO RELEASE
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: NOT REQ'D	APPROVED BY							
LM		DVT (70)				REWORK / SCRAP	DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70
									SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
				PRIORITY: C	DRAWING TITLE: NOTED						DRAWING NO.: LEO-280			EO NO.: 1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

90

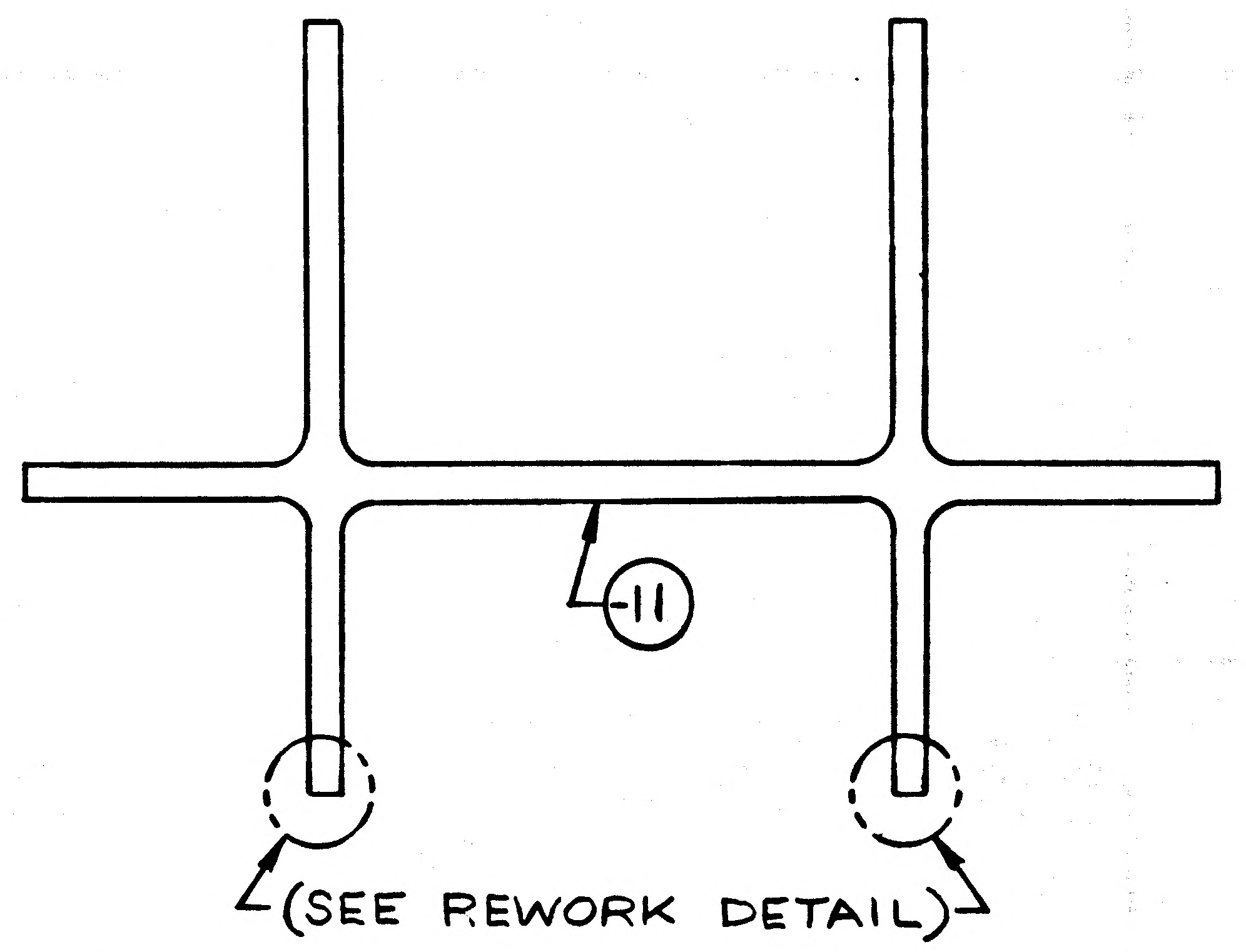
ENG 32.1 REV 3-65

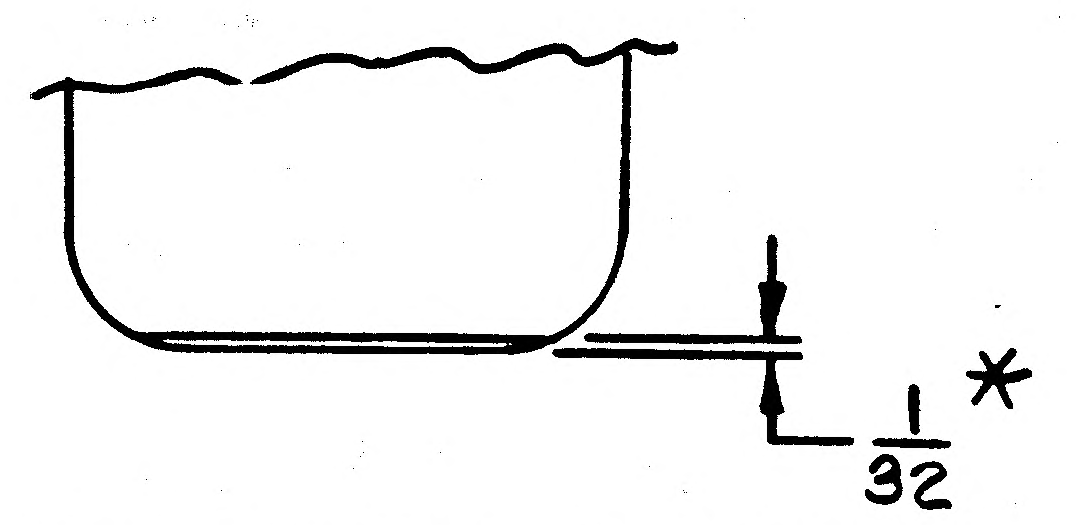
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18701		EO NO. A4	
CONTROL INFO NO.	LM-2-6241		





REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #76 (ALODINE) PER LSP14-9010.

* DIMENSION IS FOR EO PURPOSES ONLY. DO NOT INCORPORATE ON DRAWING TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSY	IN FLD/DWG FOR -11 REVISED TRIM 1/32	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-12 (42)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	PJt				KC	KC	PJt	
DATE	6-11-70			6/11/70	6/8/70	6/8/70	6-11-70	6/9/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER~D/S~AFT UPPER DECK PROPELLANT TANK CUTOUT~FRAME	LDW280-18701	A4

ISSUED BY LIAISON J. MALONEY 6/8/70 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18702

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-3DR11(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
	LDW280-60523	LM-10(40)	1
	LDW280-60521	LTA-3DR11(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1
PART NO. LDW280-18702-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-3DR11(460)	1EA
		LTA-11(23)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60521	LM-10(40)	1EA
PART NO. LDW280-18702-11,-13,-15 & -19			

WORK PACKAGE FUNCTION NO. #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	—	GRUMMAN REL INFO	
LAST DASH NO. USED	-19	PRIM NO. 207	K(001) ME-16 7/12/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3890 PKG 53

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	F.HIPPLER 6-23-69		
LAYOUT BY	D.SHAPIRO		
CHECKED BY	J.S. COBB 7-30-69		
GR LEADER	W. Hansen 8-1-69		
VEH DES INT	Thorjussen 8-1-69		
STRUCTURES		PROJ ENGR	8/9/69
STRUCTURES	NM 8-6-69	REL GROUP	L. March 8-11-69

(E) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ UPPER DECK
PANEL STIFFENER

SIZE	CODE IDENT NO.	
B	26512	LDW280-18702
SCALE	NONE	SHEET 1.00 OF 3

D

ENG 77.1 12-65

EC PA120

CDR 8-22-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18702-19	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 5 X 16	T6	88	
		-17	E	ZEE	↕	↕	↕	.040 X 4 X 25	T6	88	
		-15	E	ANGLE	↕	↕	↕	.036 X 2 X 14	T6	88	
		-13	E	ZEE	↕	↕	↕	.032 X 4 X 16	T6	88	
		LDW280-18702-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 3 X 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18702

SCALE NONE

SHEET 2.00

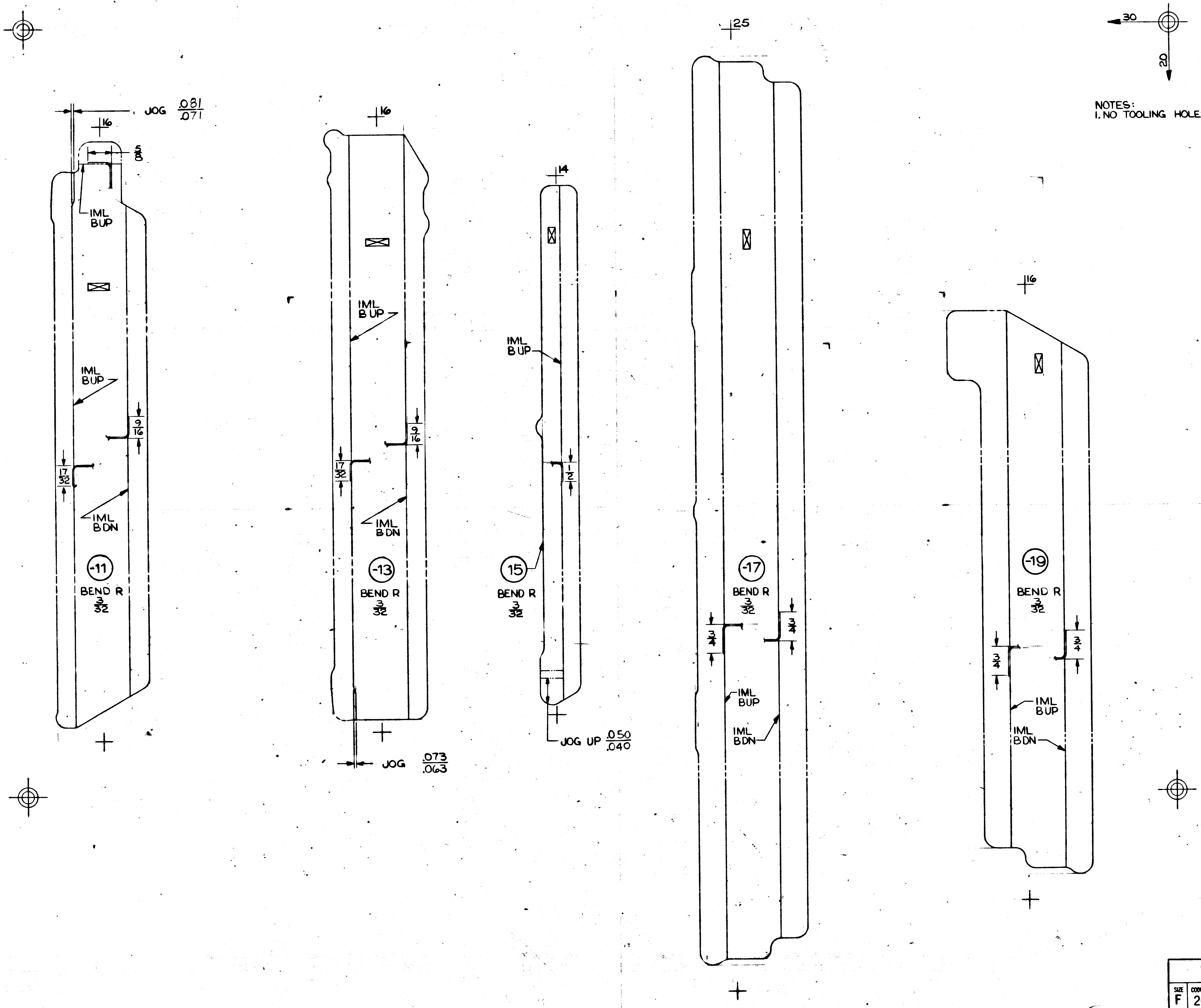
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN. NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



30
20
JOG .081/.071
16
5/8
IML BUP
IML BUP
9/16
17/32
IML BDN
-11
BEND R 3/32
16
IML B UP
9/16
17/32
IML BDN
-13
BEND R 3/32
JOG .073/.063
14
IML B UP
1/2
15
BEND R 3/32
JOG UP .050/.040
25
-17
BEND R 3/32
3/4
3/4
IML BUP
IML BDN
16
-19
BEND R 3/32
3/4
3/4
IML BUP
IML BDN

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18702
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18702

LDW280-18702

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18702
EO NO. A1
CONTROL INFO NO. LDW280B8755

IN MB, BIM & F/D CREATE -21 IDENTICAL TO -11 EXCEPT
MAKE GAGE .040 (WAS .032)
FOR -21 N/A LDW280-60521 EFF: LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)
1 REQD/MOD

IN MB, BIM & F/D REMOVE -11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 51 Pg 4

REASON FOR EO: LOAD INCREASE IN UPPER DECK CUTOUT FRAME STIFFENERS.

DESCRIPTION OF EO: CREATED -21. REMOVED -11

GAEC EO RELEASE: SAB 8-22-9
8-25-9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		LTA-11(23)	
		LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
			-11	APPROVED BY	R8T				NM		
✓				DATE	8/16/69			8/16/69	8/17/69		8/19/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-DESCENT STAGE-UPPER DECK	LDW280-18702	A1

C0L082269
ISSUED BY D. SHAPIRO/G. HANSHMANN X87222 SECTION VDI GROUP NO. 335 PL 2.5

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * C') THE FOLLOWING DWGS. ADD D.V.T. (70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700		A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747		A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 53 PG3&4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. *6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T. (70) EFF.

GAEC EO RELEASE: 9-12-69 VK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	9-3-69			8/21/69	9/8/69		9/11/69	9/18/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 1859
CONTROL INFO NO. LM-5-22301

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3890

REASON FOR EO
QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK280-11372

DESCRIPTION OF EO
ON -*, QTY ■ REQ'D/VEHICLE WAS ▲

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY						CR		
DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

LDW280-18703

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	2
		LTA-3DR/1 (460)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60521	LM-10 (40)	2

PART NO. LDW280-18703-21 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	1 EA
		LTA-3DR/1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60521	LM-10 (40)	1 EA

PART NO. LDW280-18703-11,-12,-13,-14,-15,-17,-18,-19 & -20 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -21

GRUMMAN REL INFO
PRIM NO. 207
JK (001) ME-16 8/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 51

ECPA 120

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY A.LITVINOFF 7-1-69
LAYOUT BY D.SHAPIRO 7-1-69
CHECKED BY H. HICKS 7-23-69
GR LEADER J. W. Hansmann 7-29-69
VEH DES INT Thorjussen 7-29-69
STRUCTURES
STRUCTURES N.M. 7-30-69
PROJ ENGR 7/31/69
REL GROUP G. Marsh 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL-
DESCENT STAGE-LH UPPER
DECK-WATER TANK SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18703
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-66

CDR 8-21-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18703-21	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032×2×3	T6	88	
		-20		CHANNEL				.032×3×4			
		-19		CHANNEL				.032×3×6			
		-18		CHANNEL				.032×3×7			
		-17		CHANNEL				.032×3×8			
		-15		CLIP				.063×2×3			
		-14		ZEE				.032×4×16			
		-13		ZEE				.032×4×16			
		-12		CHANNEL				.080×4×16			
		LDW280-18703-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.080×4×16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H 6088
88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18703

SCALE NONE SHEET 2.00

⑥

ENG 77.2 7-65

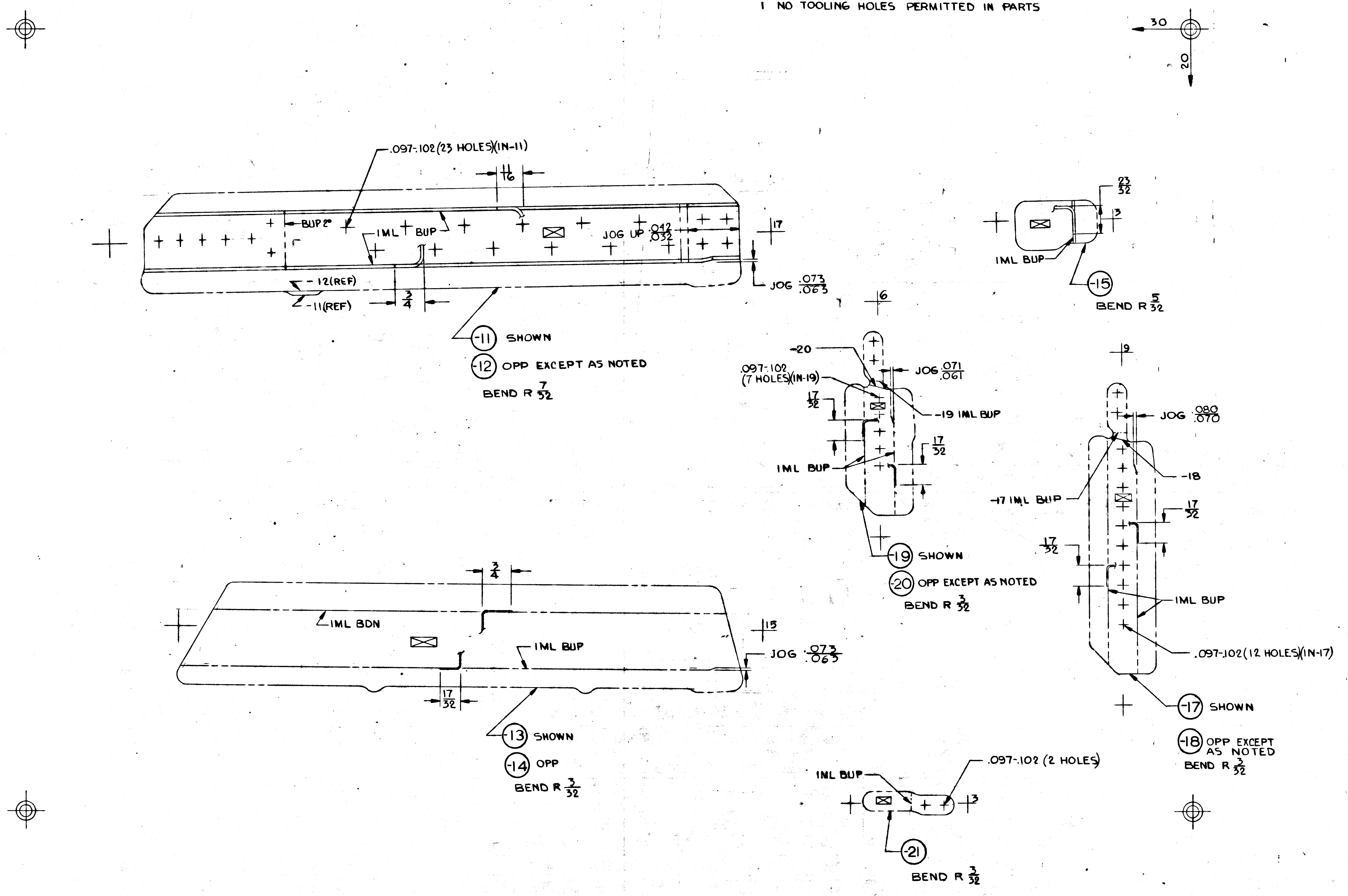
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	V
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	V

NOTES

1 NO TOOLING HOLES PERMITTED IN PARTS


30
20
.097-.102 (23 HOLES)(IN-11)
1/16
BUP 2°
IML
BUP
JOG UP .042/.032
17
JOG .073/.063
-12 (REF)
-11 (REF)
3/4
-11 SHOWN
-12 OPP EXCEPT AS NOTED
BEND R 7/32
23/32
13
IML BUP
-15
BEND R 5/32
6
-20
.097-.102 (7 HOLES)(IN-19)
JOG .071/.061
17/32
-19 IML BUP
17/32
IML BUP
-19 SHOWN
-20 OPP EXCEPT AS NOTED
BEND R 3/32
9
JOG .080/.070
-18
-17 IML BUP
17/32
17/32
IML BUP
.097-.102 (12 HOLES)(IN-17)
-17 SHOWN
-18 OPP EXCEPT AS NOTED
BEND R 3/32
3/4
IML BDN
IML BUP
15
JOG .073/.063
17/32
-13 SHOWN
-14 OPP
BEND R 3/32
IML BUP
.097-.102 (2 HOLES)
3
-21
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18703
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 1

LDW280-18703

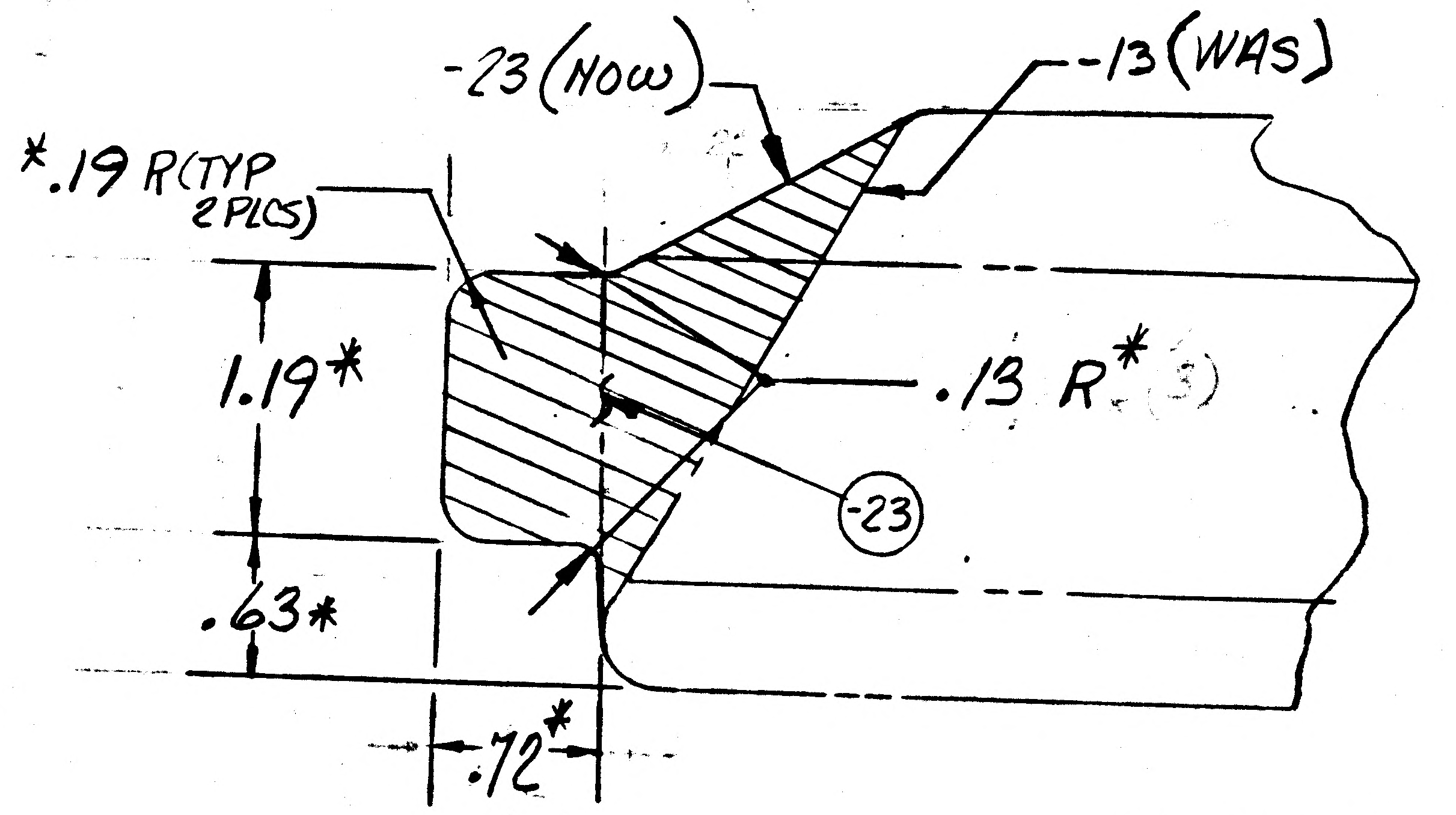
LDW280-18703

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18703		EO NO. A1
CONTROL INFO NO. LDW 280B8954		

IN F/D, MODEL BLOCK & B/M: EXCEPT AS NOTED:
ADD -23 SAME AS -13 EXCEPT AS NOTED:
IN SHADED AREA:



* DIMENSIONS SHN REF ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 51	(5)

REASON FOR EO: LENGTHEN TO PICK UP BRACKET SUPPORT

DESCRIPTION OF EO: ADDED -23 REMOVED -13

GAEC EO RELEASE	
LR	9-25-69
K	9/29/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44),	
LM		LTA-3DR/1 (460) &	
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-13

APPROVED BY	FDR							
DATE	9/25/69			9-24-69			9/25/69	9-27-69
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL D/S LH UPPER DECK WATER TANK SUPPORT	LDW280-18703	A1

092969
ISSUED BY T.COTTER/D.RAGAS x87222 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

90

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18703
EO NO. A2
CONTROL INFO NO. LM-2-5700

IN M/B FOR -15

NHA LDW280-60521 S/B LDW280-60587.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 51 ECP A120 (2)

REASON FOR EO: CHG. IN ASSY. SEQUENCE.

DESCRIPTION OF EO: IN M/B FOR -15
NHA LDW280-60587 WAS LDW280-60521.

R GAEC EO RELEASE: JK SEB 11-24-69

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	DATE	11-21-69			11/21	11/17/69	11/17/69	11/22/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

KC

PRIORITY: C
DRAWING TITLE: CHANNEL ~ D/S LH UPPER DECK ~ WATER TANK SUP
DRAWING NO.: LDW280-18703
EO NO.: A2

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION V. D. I. GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18703		EO NO. A3	
CONTROL INFO NO. LM-2-5787			

THIS IS A REVISION OF EO A1

FOR -23, .72* DIM S/B .63*

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 5.

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE (2)
ZEE TOO LONG - CAUSES INTERFERENCE.	REF EO A1 .63 DIM WAS .72	R 12-30-69

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3DR-1/(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY					KC			
DATE	12-23-69			12/23	12/16/69	12-16-69	12/23/69	12/17/69
15 Dec 69	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CHANNEL~D/S L.H. UPPER DECK~WATER TANK SUPPORT	LDW280-18703	A3

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION Vehicle Design Integ GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18715

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60541	LM-10(40)	1
PART NO. LDW280-18715-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00								
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-11	PRIM NO.	JK(001)
		207	ME-16 11/8/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS - ANGLES
.XX ± .03 .XXX ± .010 ± 0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3994 PK 57

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A. RIHA 10-29-69		
LAYOUT BY	W. LEIFER WL 11-3-69		
CHECKED BY	D. FASS 11-3-69		
GP LEADER	Thorgusen 11-4-69		
VEH DES INT	11-4-69		
STRUCTURE	A.R.K. WPC 11/7/	PROJ ENGR	11/7/69
STRUCTURE	11/7/69	REL GROUP	March 11/7/69
	✓		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ RH LWR DECK
MOD EQUIP STOW ASSY TRUSS SPRT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18715
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 11-07-69

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-18715-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 x 2 x 18	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	HEAT TREAT	MIL-H 6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18715
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

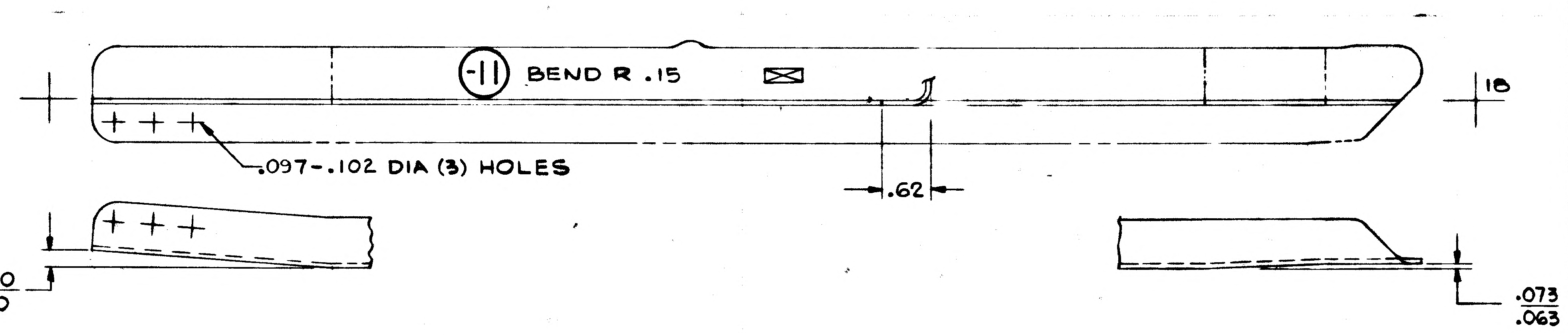
NAS 9-1100

1 TRAM O.K.
T.S 10-23-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~[illegible]~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± .03	✓

NOTES,

1. NO TOOLING HOLES PERMITTED IN PARTS.



LDW280-18715

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18715
SCALE FULL		SHEET 3.00

ENG 73-6 REV 9-67

FOR PHOTO REPRODUCTION 1 K-2

01

NAS 9-1100

LDW280-18716

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LM-14(44)	1 EA
↑	↑	LM-13(43)	↑
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
↓	↓	LTA-11(23)	↓
LM	LDW280-60543	LTA-3DR/1(460)	1 EA
PART NO. LDW280-18716-12,-16, -18 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LM-14(44)	1 EA
↑	↑	LM-13(43)	↑
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
↓	↓	LTA-11(23)	↓
LM	LDW280-60542	LTA-3DR/1(460)	1 EA
PART NO. LDW280-18716-11,-13, -15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-19	PRIM NO. 207	SILD JK(001) ME-16 11/6/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS - ANGLES
XX±.03 XXX±.010 ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3994 PKG 94

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 10/24/69		
LAYOUT BY	E. MILLER EJM 11/3/69		
CHECKED BY	H. Hick 11-3-69		
GR LEADER	Thompson 11-4-69		
VEH DES INT	F. DeLeo 11-4-69		
STRUCT	K.G. 11/5/69	PROJ ENGR	11/5/69
STRUCT	11/5/69	REL GROUP	L. Marsh 11/6/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE - LOWER DECK - PAYLOAD TRUSS SPRT.

SIZE B | CODE IDENT NO. 26512 | LDW280-18716
SCALE NONE | SHEET 1.00 OF 3

CDR 11-7-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18716-19	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.063×3×11	T6	88	
		LDW280-18716-18	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.071× 2×9	T6	88	
		-17	↕	↕	↕	↕	↕	.071× 2×9	↕	↕	
		-16	↕	↕	↕	↕	↕	.071× 2×10	↕	↕	
		-15	↕	↕	↕	↕	↕	.071× 2×10	↕	↕	
		↕	↕	↕	↕	↕	↕		↕	↕	
		-13	↕	↕	↕	↕	↕	.063× 3× 11	↕	↕	
		-12	↕	↕	↕	↕	↕	.063×12×19	↕	↕	
		LDW280-18716-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.063×12×19	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18716

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

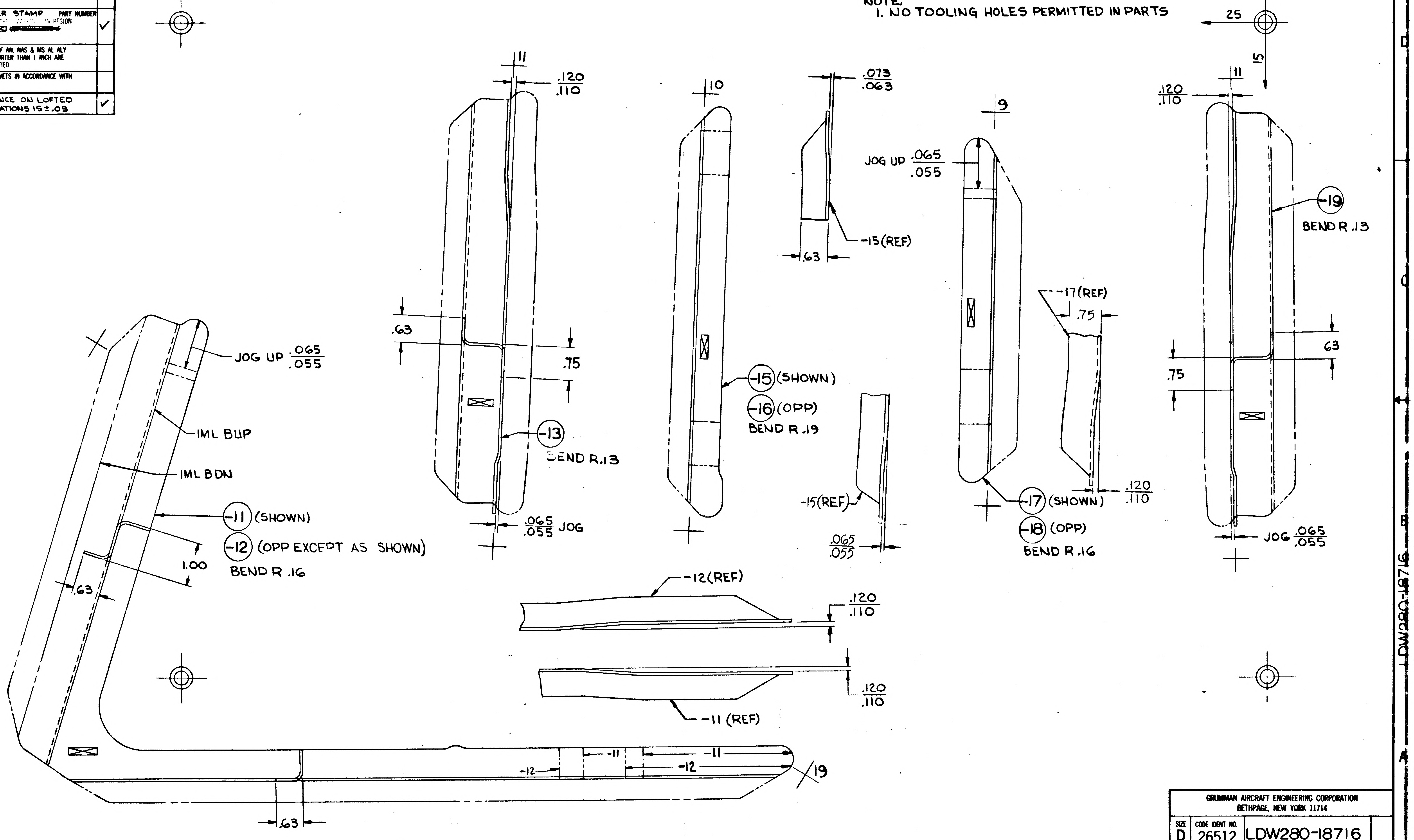
01

NAS 9-1100

LDW280-18716

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER [illegible] IN REGION MARKED ☒ ~~[illegible] NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS


25
15
11
.120
.110
10
.073
.063
9
JOG UP .065
.055
-15(REF)
.63
-19
BEND R.13
-17(REF)
.75
63
.63
.75
-15(SHOWN)
-16(OPP)
BEND R.19
-13
BEND R.13
.065
.055 JOG
-15(REF)
-17(SHOWN)
-18(OPP)
BEND R.16
JOG .065
.055
JOG UP .065
.055
IML BUP
IML BDN
-11 (SHOWN)
-12 (OPP EXCEPT AS SHOWN)
BEND R .16
1.00
-12(REF)
-11 (REF)
-12
-11
19

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18716	
SCALE 1/1		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

LDW280-18716

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO280 | EO NO. 1760
CONTROL INFO NO LDW280B9287

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY △	DWG TITLE	CHG NO
LDW280-18767	-11 (1)	LDW200-55518	SEE DWG	A2
	-13 (1)	-55519		
	-15 (1)	-55524		
	-17 (1)	-55525		
-18716	-11, -13, -15 & -17 (1 EA)	-55519		A1
	-12, -16, -18 & -19 (1 EA)	-55524		
-17786	-19 (1)	-55525		B5
-17787	-15 & -17 (1 EA)	-55525		B5
-18068	-13, -17 & -19 (1 EA)	-55525		A5
M18114	-11 (1)	-55518		A1
M18115	-11 (1)	-55518		A1
		-55519		
		-55524		
	-11 (1)	-55525		
LDW280-18770	-11, -13 & -15 (1 EA)	LDW200-55524	SEE DWG	A2

LFM

THIS IS AN ORIGINAL EO

CL II ENGRG CHG | CL I ENGRG CHG | ✓ LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, FOR N/A △

EFFECTIVITY: E I
LM LFM507 | GAEC UNIT NO. LTA-5/R (159) | SUB CONTR UNIT NO.

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D | REWORK | SCRAP
APPROVED BY: PSF | DATE: 11-18-69 | VDI
SUPPORT | RELIAB. GROUP | GROUP LEADER 11-18 | STRESS GROUP 11/18/69 | LIAISON ENGRG | PROJ ENGRG 11/18/69 | 11/19/69
GAEC EO RELEASE: PS 11-18-69 | 11/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO280
EO NO. 1760

CDR 12-5-69 HERB DONNER X86046
SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18717 A

PART NO. LDW280-18717-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-58667	LM-14(44)	3
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
LM	LDW280-58667	LM-8(38)	
LFM-469	LDW200-55517	LM-7(37)	
LFM-469	LDW200-55517	LM-6(36)	3

PART NO. LDW280-18717-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-58667	LM-14(44)	1
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
LM	LDW280-58667	LM-8(38)	
LFM-469	LDW200-55517	LM-7(37)	
LFM-469	LDW200-55517	LM-6(36)	1

PART NO. LDW280-18717-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-58667	LM-14(44)	2
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
		LM-10(40)	
		LM-9(39)	
LM	LDW280-58667	LM-8(38)	
LFM-469	LDW200-55517	LM-7(37)	
LFM-469	LDW200-55517	LM-6(36)	2

WORK PKG FUNCTION NO. 1.10 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-5	PRIM NO. 207	JK(001) ME-16 A-10/20/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 5093	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	CHRISTINA	RELIABILITY	
LAYOUT BY	CHRISTINA	THERMO	AB 9-18-69
CHECKED BY			
GPLDR	MP 9-19-69		
VDI	FDR 9-18-69		
STRUCT	WPR 9-18-69	PROJ ENGR	RVP 9-18-69
STRUCT		REL GROUP	GB 9-18-69
WEIGHT			10/10/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP ASSY.
DESCENT STAGE MESA PALLET
THERMAL BLANKET

SIZE	CODE IDENT NO.	DWG NO.	REV
B	26512	LDW280-18717	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00		LFM-469 ⓥ		✓		EOA1 LCD 5093	INITIAL DWG RELEASE PARTS MADE PER EO S.Z. Szalwinski 10-9-69	LM-6(36) THRU LM-14(44)	NOT	REQD.	ACOZZALI 10-2-69	10/14/69	

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18717	A
SCALE NONE		SHEET 1.10	

Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
ALT	ALT	ALT		GT534B3	E	THREAD	GRUMMAN STD	SEE NOTE 2					
AR	AR	AR		GT534B2	E	THREAD		SEE NOTE 2					
	1	1		GT535G-LCS0010	↑	TAPE	↑						
1				GW13A-08-0014		WEBBING							
	1			GW13A-08-0132		WEBBING							
		1		GW13A-08-0212		WEBBING	↓						
							GRUMMAN STD						
				LDW280-18717-5		STRAP ASSY					NONE	NONE	
				LDW280-18717-3	↓	STRAP ASSY					NONE	NONE	
				LDW280-18717-1	E	STRAP ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-18717	A
SCALE NONE		SHEET 2.00	

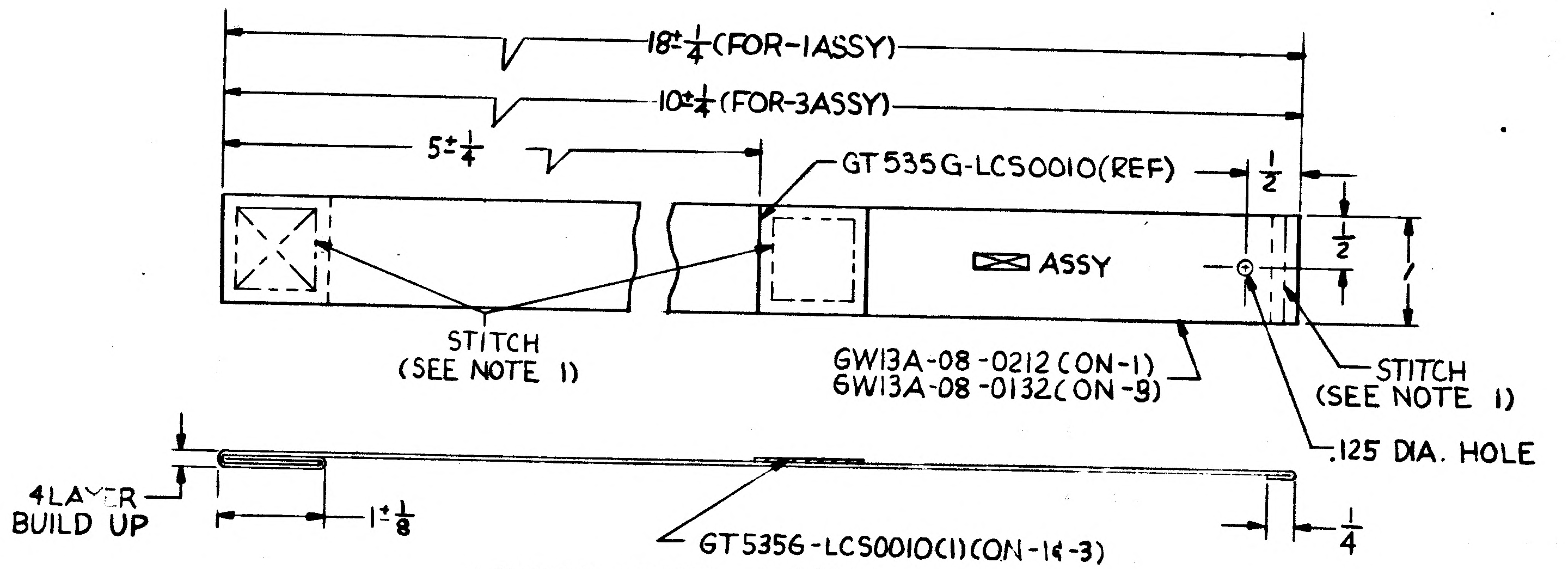
ENG 77.2 7-66

01

NAS 9-1100

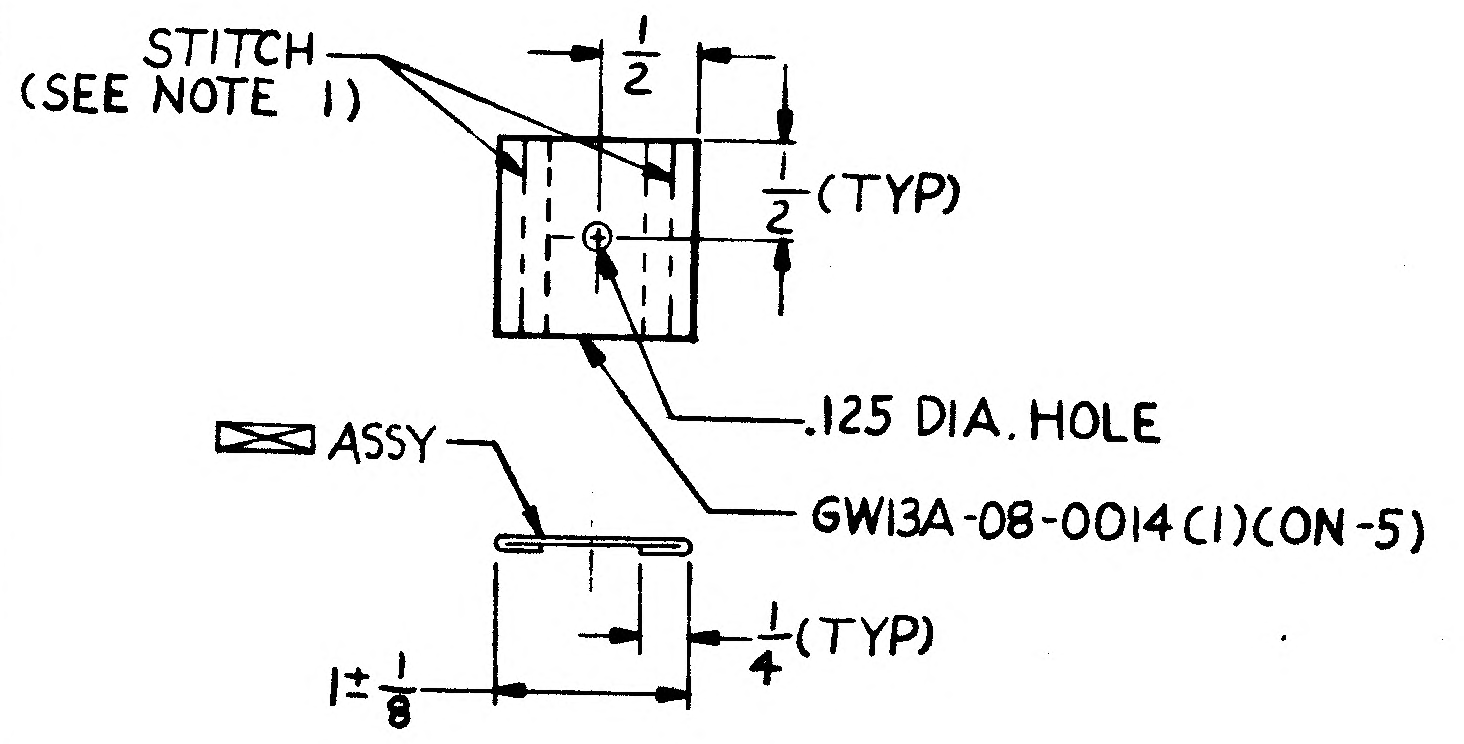
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES
1. ALL STITCHING TO BE IN ACCORDANCE WITH FED.STD.# 751 TYPE 301, 6-11 STITCHES PER INCH. ALL STITCHING TO BE BACKED STITCHED A MIN. 3/8 TO 1/2 INCH.
2. GT534B-3 MAYBE USED AS ALTERNATE FOR GT534B-2



18 ± 1/4 (FOR-1ASSY)
10 ± 1/4 (FOR-3ASSY)
5 ± 1/4
GT535G-LCS0010(REF)
1/2
☒ ASSY
1/2
1
STITCH (SEE NOTE 1)
GW13A-08-0212 (ON-1)
GW13A-08-0132 (ON-3)
STITCH (SEE NOTE 1)
.125 DIA. HOLE
4 LAYER BUILD UP
1 ± 1/8
GT5356-LCS0010(1)(ON-1 & -3)
1/4

LDW280-18717 -1 ASSY
-3 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED)



STITCH (SEE NOTE 1)
1/2
1/2 (TYP)
.125 DIA. HOLE
☒ ASSY
GW13A-08-0014 (1)(ON-5)
1 ± 1/8
1/4 (TYP)

LDW280-18717 -5 ASSY

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18717	A
SCALE FULL		SHEET 3.00	

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

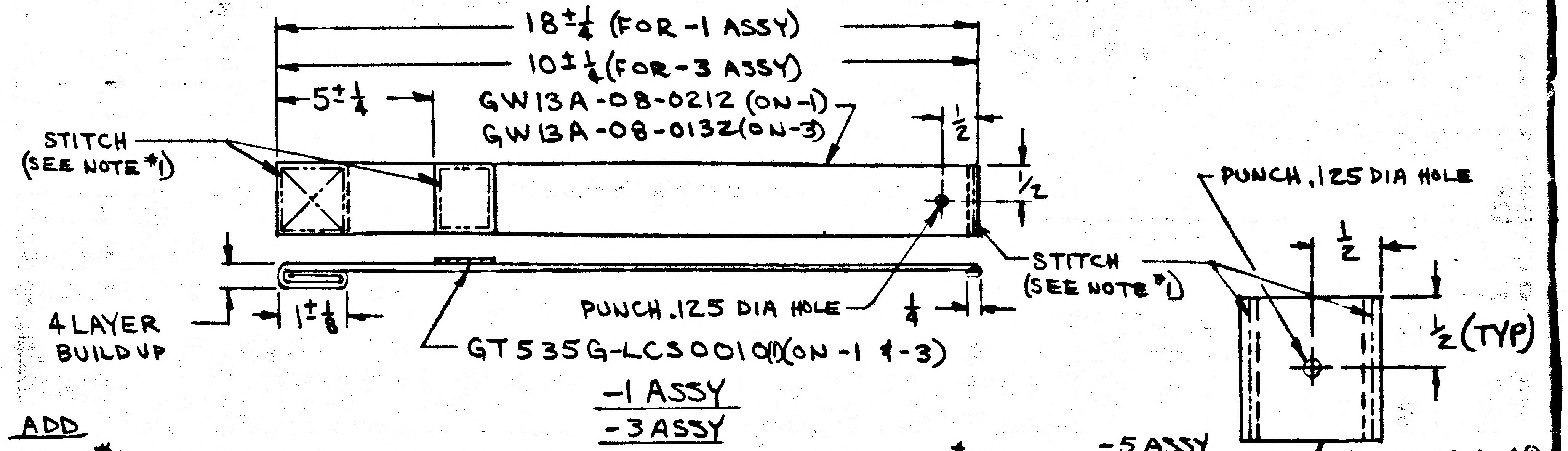
ENGINEERING ORDER

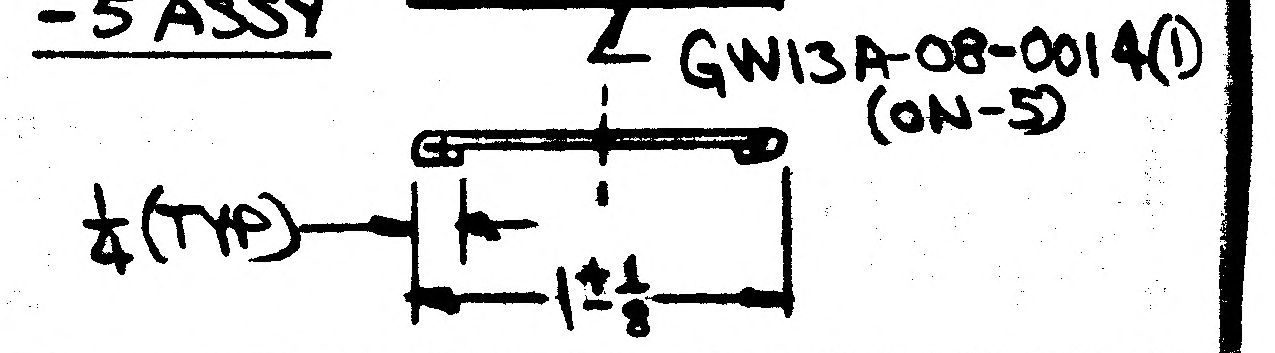
DWG. NO. LDW 280-18717 | EO NO. A1

CONTROL INFO NO. LDW 280B 8351

ADD -1 ASSY (2 REQD/MOD)
-3 ASSY (1 REQD/MOD)
-5 ASSY (3 REQD/MOD)

EFF. LFM 469 LM-6(36) & LFM 469 LM-7(37) N/A LDW 200-55517
LM-8(38) THRU LM-14(44) N/A LDW 280-58667


18 ± 1/4 (FOR -1 ASSY)
10 ± 1/4 (FOR -3 ASSY)
5 ± 1/4
GW13A-08-0212 (ON -1)
GW13A-08-0132 (ON -3)
1/2
1/2
STITCH (SEE NOTE #1)
STITCH (SEE NOTE #1)
PUNCH .125 DIA HOLE
PUNCH .125 DIA HOLE
1/4
4 LAYER BUILDUP
1 ± 1/8
GT535G-LCS0010(1) (ON -1 & -3)
-1 ASSY
-3 ASSY
1/2
1/2 (TYP)


-5 ASSY
GW13A-08-0014(1) (ON -5)
1/4 (TYP)
1 ± 1/8

ADD
NOTE #1 ALL STITCHING TO BE IN ACCORDANCE WITH FED STD #751, TYPE 301, 6-11 STITCHES PER INCH. ALL STITCHING TO BE BACK STITCHED A MIN 3/8 - 1/2 INCH; USE GT534B-2 OR GT534B-3 THREAD (A/R).

NOTE #1

✱ DWG NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5093 PKG 50 (5)

REASON FOR EO
MODIFY BLANKET FOR NEW COLOR T.V. CAMERA IN MESA. TK

DESCRIPTION OF EO
E.O. A1 INITIAL DWG RELEASE
PARTS MADE PER EO.

GAEC EO RELEASE
LR 9-18-69
JK 9/18/69

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LFM 469 LM-	6(36) & LM-	7(37)
LM	LM-8(38)	THRU LM-14	(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✱		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	F.D.R.	A.S.		L.P.	WPR		V.P.	Bauman
DATE	9/18/69	9/18/69		9-18-69	9/18/69		9/18/69	9/18/69
	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~WGT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP -D/S- MESA PALLET THERMAL BLANKET	LDW 280-18717	A1

CDR 9/19/69
ISSUED BY V.A. CHRISTINA / A THORJUSEN SECTION VDI x87222 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18717
EO NO. B1
CONTROL INFO NO. LDW280B9569

IN MOD. BLK ON -1, -3 & -5 N/A LDW280-60667 (WAS) LDW280-58667

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 92	⑤

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH N/A	IN MOD. BLK. ON -1, -3 & -5 N/A LDW280-60667 (WAS) LDW280-58667	1-13-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY	PST	JC K						PST	
DATE	1-12-70	1-12-70		1/12/70	1/12/70			1-12-70	1/12/70
	VD I	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		CCB

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP - DIS - MESA PALLET THERMAL BLKT	LDW280-18717	B1

CDE 011270

ISSUED BY D. SHAPIRO / G. HANSMANN X87222 SECTION VD I GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18717

EO NO. B2

CONTROL INFO NO. LDW280C1267

IN M/B

FOR -1 (2REQD/MOD) REMOVE EFF LM-10 (40) THRU LM-12 (42) [illegible]

FOR - 5 (1.REQD/MOD) WAS (3REQD/MOD) EFF LM-10(40) THRU LM-12(42) [illegible]

N/A LDW 280-60667

ADD EFF. TM-11R(501)
TO -5 (1REQD/MOD) } N/A LDW280-60667
-3 (1REQD/MOD) }

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 5516 PKG 50 SH 1

REASON FOR EO: REVISE MESA BLANKET TO ACCEPT RCA COLOR T.V. CAMERA

DESCRIPTION OF EO: FOR-5(1) & -3(1) ADDED TM-11R(501)
IN M/B
FOR-1 (2REQD/MOD) REMOVED LM 10(40) THRU LM-13(43) [illegible]
FOR-5 (2 REQD/MOD) WAS (3REQD/MOD) LM-10 THRU LM-13

GAEC EO RELEASE: C W.M. 1-20-71

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-12 (42)	
		TM-11R (501)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		JCS			NM				
DATE	1-20-71	1/20/71		1/20/71	1/20/71		1/20/71	1-20-71	
	VDI	~~SUPPORT~~ [illegible]	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOV	

PRIORITY: C

DRAWING TITLE: STRAP D/S MESA PALLET THERMAL BLANKET

DRAWING NO. LDW280-18717

EO NO. B2

01-22-71
ISSUED BY VINCENT CHRISTINA x87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18718

LM	LDW280-60791	LM-14(44)	3
		THRU	
LM	LDW280-60791	LM-10(40)	3
PART NO. LDW280-18718-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60527	LTA-11(23)	2
		LTA-3DR/1(46)	2
		LM-14(44)	2
		THRU	
LM	LDW280-60527	LM-10(40)	2
PART NO. LDW280-18718-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60791	LM-14(44)	1
		THRU	
	LDW280-60791	LM-10(40)	1
	LDW280-60587	LM-14(44)	2
		THRU	
LM	LDW280-60587	LM-10(40)	2
PART NO. LDW280-18718-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60791	LM-14(44)	1EA
		THRU	
LM	LDW280-60791	LM-10(40)	1EA
PART NO. LDW280-18718-11 & -13		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207 SAT-B JK(30) ME-16 11/5/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS — ANGLES
±XX.03 ±XXX.010 ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3994 PKG 89

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY DELLECESE 10-25-69
LAYOUT BY T.COTTER
CHECKED BY L.ATLAS 11/1/69
GP LEADER G.H. Thomson 11-4-69
VEH DES INT F. DeKerpins 11-4-69
STRUCT NM 11-4-69
STRUCT 11/4/69
PROJ ENGR 11/5/69
REL GROUP 11/5/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-BEAM PANEL
ELEC LINE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18718
SCALE NONE
SHEET 1.00 OF 3

CDR 11/05/69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18718-19	E	ZEE	AL ALY EXTR	QQ-A-200/8	6061-T6511	GS186A8CG×2	NONE	88	
		LDW280-18718-17	E	SHIM	AL ALY SH	QQ-A-250/12	7075-T6	.032X 1 X 2	NONE	88	
		LDW280-18718-15	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.050X 2 X 3	T6	88	
		LDW280-18718-13	E	TEE	AL ALY EXTR	QQ-A-200/11	7075-T6511	GS183A13DGX1	NOTE 2		
		LDW280-18718-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.040X 3 X12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18718

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

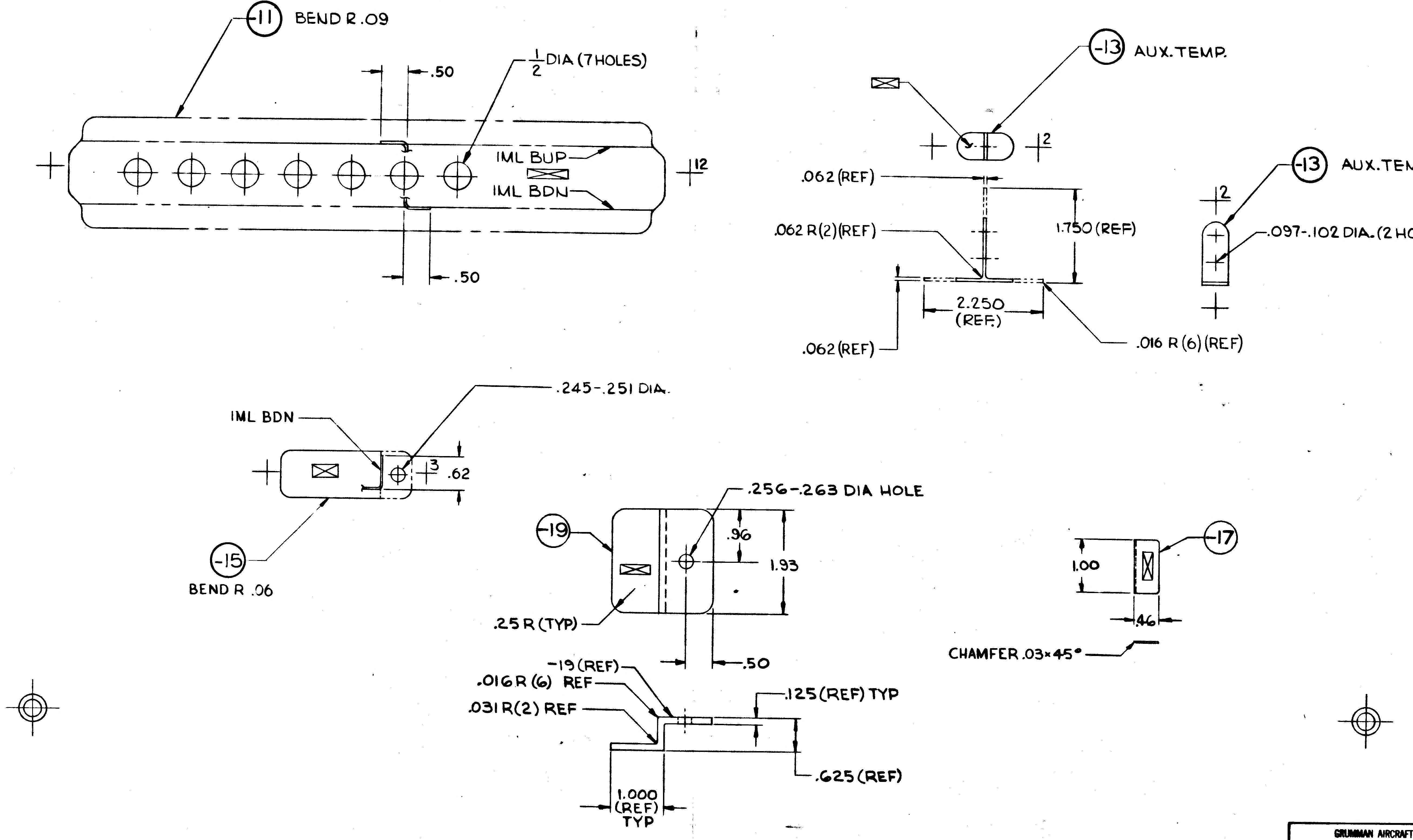
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS
2. AGE FROM T6511 CONDITION TO T73 TEMPER BY AGING FOR 7 1/2 TO 8 1/2 HOURS AT 350°F ±10°F. THEN SULPHURIC ACID ANODIZE PER MIL-A-8625, TYPE II. AFTER ANODIZING PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP14-4305



-11 BEND R .09
.50
$\frac{1}{2}$ DIA (7 HOLES)
IML BUP
IML BDN
12
.50
-13 AUX. TEMP.
2
.062 (REF)
.062 R(2)(REF)
1.750 (REF)
2.250 (REF.)
.062 (REF)
.016 R (6)(REF)
-13 AUX. TEMP.
2
.097-.102 DIA. (2 HOLES)
.245-.251 DIA.
IML BDN
3
.62
-15
BEND R .06
.256-.263 DIA HOLE
-19
.96
1.93
.25 R (TYP)
.50
-17
1.00
.46
CHAMFER .03×45°
-19 (REF)
.016 R (6) REF
.031 R (2) REF
.125 (REF) TYP
.625 (REF)
1.000 (REF) TYP
25
15

LDW280-18718

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18718
SCALE FULL		SHEET 3.00

3 FOR PHOTO REPRODUCTION

K2

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18718

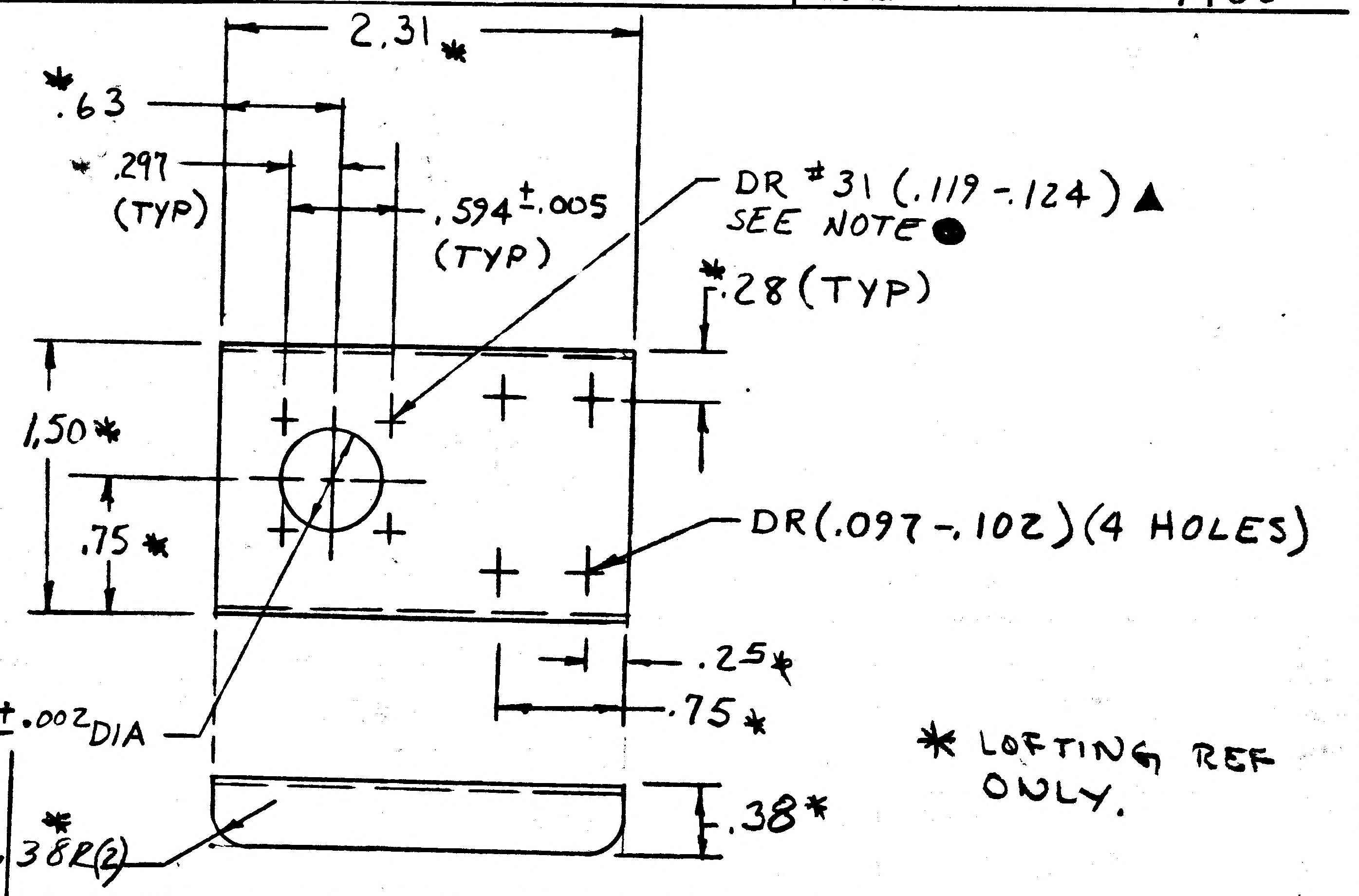
EO NO. A1

CONTROL INFO NO. LDW280B9480

ADD -21
N/A LDW280-60791
LM10(40) THRU 14(44)
1 REQD/MOD

MAT'L: 2024-T3 (.032)
AL. ALY. SH. QQ-A-250/4
I-4T=E BEND R .09
FIN #38 (LPC14-9030)

(ADD)
NOTE ● (USE NEXT AVAIL NO.)
●FOR HOLES MARKED ▲ SEE DWG LSC270-813-7 FOR CORRESPONDING HOLE PATTERN


2.31*
*.63
*.297 (TYP)
.594±.005 (TYP)
DR #31 (.119-.124) ▲ SEE NOTE ●
*.28 (TYP)
1.50*
.75*
DR (.097-.102) (4 HOLES)
.25*
.75*
▲ .562±.002 DIA
*.38R(2)
.38*
* LOFTING REF ONLY.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PK 89

REASON FOR EO: TO PROVIDE BRACKET FOR GOX TANK #2 GSE CONNECTOR

DESCRIPTION OF EO: ADDED -21 & NOTE ●.

GAEC EO RELEASE: JK 12/4/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40)	
LM		THRU 14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	12/3/69			12/3/69	N.M. 12/3/69		12/3/69	12/4/69
	VD1							

PRIORITY: C

DRAWING TITLE: ZEE P/S-BEAM PANEL-ELEC. LINE SUPPT.

DRAWING NO. LDW280-18718

EO NO. A1

12-5-69
ISSUED BY DON RAGAS X86046 SECTION VD1 GROUP NO. 280 PL 25

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 -18718		EO NO. A2
CONTROL INFO NO. LDW280B9492		

IN MOD BLK FOR -15

REMOVE N/A LDW280-60791 1 REQD/MOD LM10(40) THRU 14(44)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PK689

REASON FOR EO: CLIP NOT REQD

DESCRIPTION OF EO: IN MOD BLK FOR -15 REMOVED N/A LDW280-60791, LM10(40) THRU 14(44) (1 REQD)

(5)

GAEC EO RELEASE: JK 12/10/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)	
LM		THRU 14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			✓ -15	APPROVED BY					N/A			
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	12/5/69			12/5/69	12/8/69		12/9/69	12/10/69
					VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S-BEAM PANEL-ELEC SUPPT	LDW280-18718	A2

CDR 121969

ISSUED BY Dou Ragas 86046 SECTION VD1 GROUP NO. 280 PL 25

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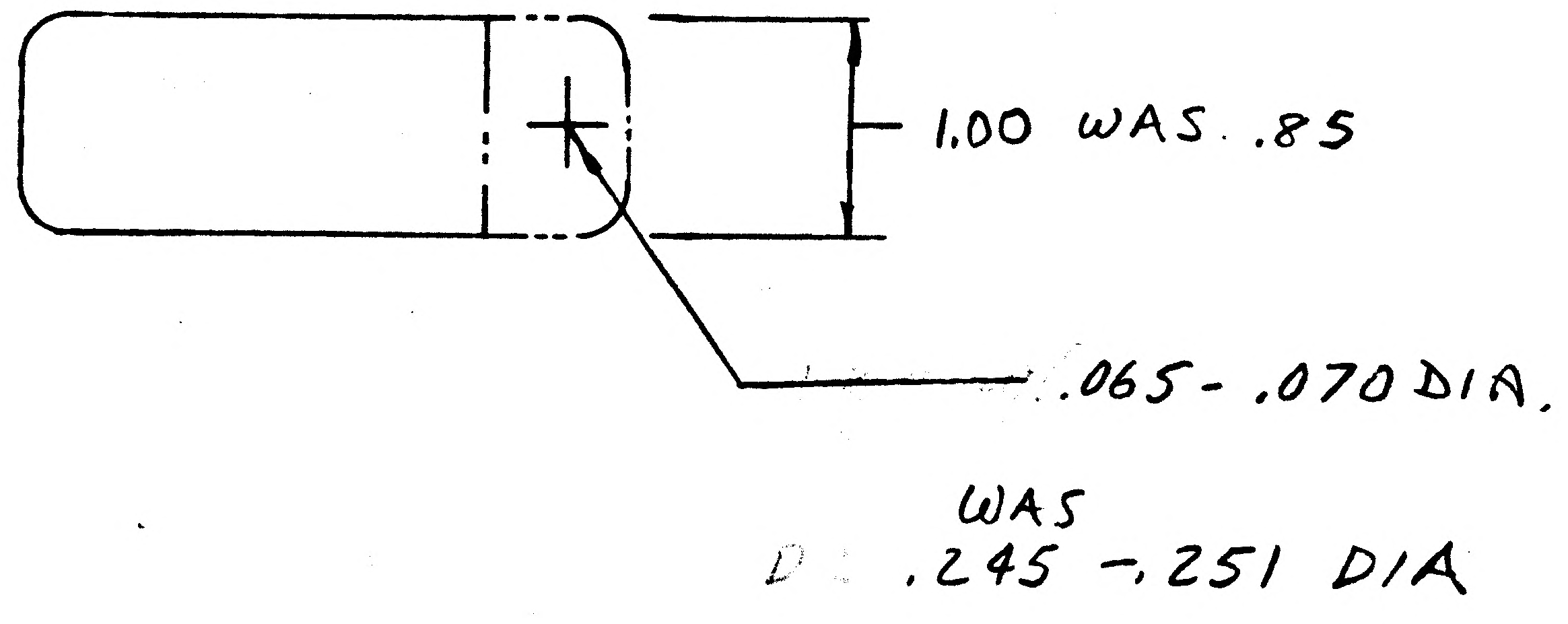
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18718
EO NO. A3
CONTROL INFO NO. LM2-5837

ADD -23 REPLACING -15. -23 IDENTICAL TO -15 EXCEPT AS SHOWN.
MAT'L, QTY [illegible] FOR -23 REMAIN THE SAME AS -15
N/A LDW280 60587 LM10(40) THRU LM-14(44) LTA3DR/1 (460)
LTA11 (23)



DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓	LCD 3890 PKG 02

REASON FOR EO: PLATENUT CAN NOT BE INSTALLED

DESCRIPTION OF EO: ADDED -23 REMOVED -15

GAEC EO RELEASE (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40) THRU LM-14(44)	
		LTA3DR/1	(460)
		LTA11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓			-15 ✓	APPROVED BY							
				DATE	1-12-70			1-9-70	1/7/70	1-7-70	1-14-70	1/7/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S- BEAM PANEL- SUPT.	LDW280-18718	A3

ISSUED BY LIAISON DON RAGAS 3604 SECTION VDI GROUP NO. 335 PL 2

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1846
CONTROL INFO NO. LDW 280 B 9970		

FOR DWG.S LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11 (23) EFF.
FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-17998-23	E7	SEE DWG.	LDW280-60587
✓ LDW280-17989-11	A8	↑	↑
✓ LDW280-17985-11	B4		
✓ LDW280-17984-13	B5		
✓ LDW280-18718-23	A4		
LDW280-18719-3,-4	A1		
LDW280-18772-15,-17,-18,-21,-23	A3		
LDW280-18774-13,-15,-19,-21	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 78 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460) UPPER DECK PLUMBING NOT ON TEST ARTICLES	FOR DWG & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.	JK 2/18/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	REWORK	✓ SCRAP	APPROVED BY	RBT			DR			
				DATE	2-18-70			2/13/70	2/16/70		2/16/70
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1846

021970
ISSUED BY A. GROSS / D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

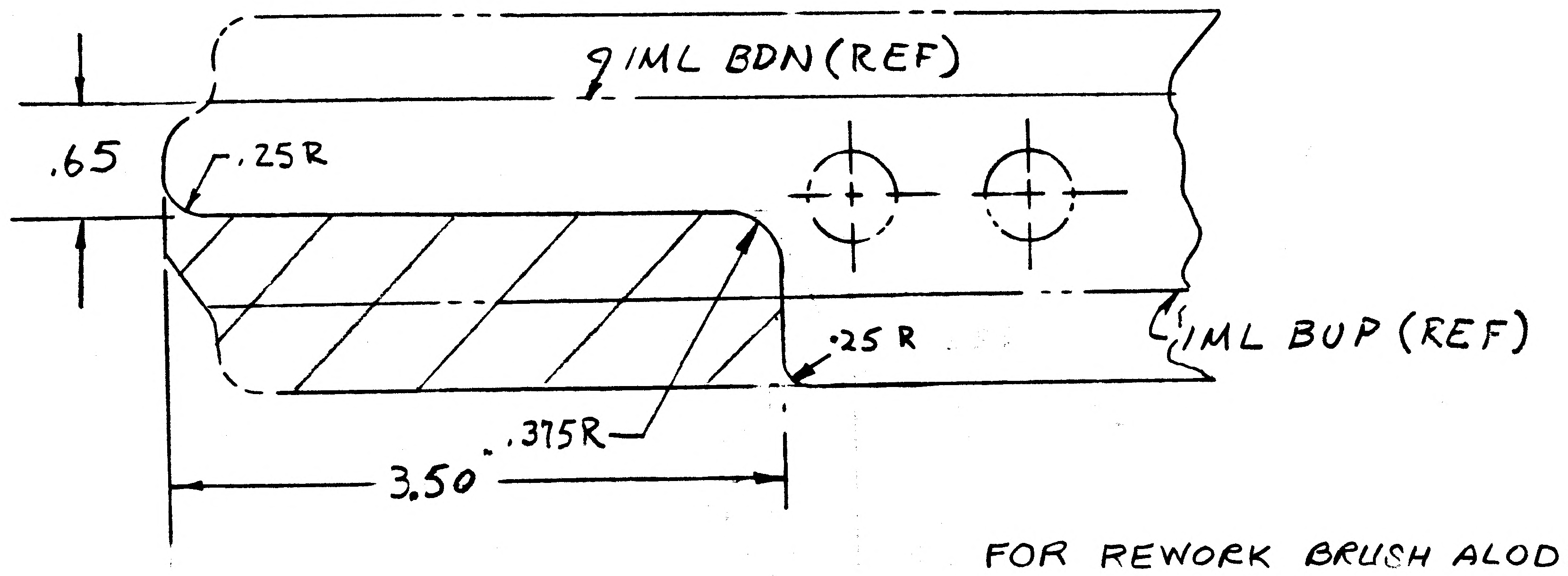
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18718
EO NO. A5
CONTROL INFO NO. LM-2-6026

TRIM -11 AS SHOWN IN SHADED AREA:



FOR REWORK BRUSH ALODINE BARE SURFACE PER LSP14-9010.

DIM SHN FOR EO PURPOSES ONLY, DO NOT INCORPORATE ON DWG.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3934

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE WITH H_2O TANK QUAD IV	TRIMMED -11	

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	3-2-70			2/26/70	2/19/70	2-20-70	3-2-70
LM		LM10(40) THRU 14(44)		✓		✓			VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP KC	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S- BEAM PANEL ELECT SUPPT	LDW280-18718	A5

ISSUED BY LIAISON DON RAGAS SECTION VD1 GROUP NO. 335 PL 2

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18718
EO NO. A6
CONTROL INFO NO. LDW280C 0136

IN MOD BLK FOR FOR-23

ADD N/A LDW280-30511 LTA 11(23) 2 REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PK89

REASON FOR EO: ADDITIONAL CLIP REQD FOR H_2O LINES INSTL

DESCRIPTION OF EO: IN M/B FOR-23 ADDED N/A - LDW280-30511 REQMTS

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA 11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					NM			
DATE	3-13-70			3/13/70	3/13/70		3/13/70	3-14-70

PRIORITY: C

DRAWING TITLE: ZEE D/S-BEAM PANEL ELECT LINES SUPT

DRAWING NO.: LDW280-18718

EO NO.: A6

CDR 03-14-70

ISSUED BY DON RAGAS X87222 SECTION VDI GROUP NO 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18718
EO NO. A7
CONTROL INFO NO. LDW280C0484

FOR -23 & N/A LDW280-60587
REMOVE LM-10(40) THRU LM-14(44) EFFECTIVITY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5538 PKG 52

REASON FOR EO: TO PREVENT INTERFERENCE WITH GSE, BRACKET WAS REDESIGNED.

DESCRIPTION OF EO: FOR -23 & N/A LDW280-60587 REMOVED LM-10(40) THRU LM-14(44) EFF.

GAEC EO RELEASE: R

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY						RVP/pst	
DATE	5-21-70			5/21/70	5/21/70	5-22-70	5/22/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BEAM PANEL ZEE BLEED LINE D/S SUPT	LDW280-18718	A7

CDR 5/22/70
ISSUED BY G. BARNES/G. HANSMANN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18719

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA3DR/1(460)	1EA
↕	↕	LTA-11(23)	↕
↕	↕	LM-14(44)	↕
↕	↕	LM-13(43)	↕
↕	↕	LM-12(42)	↕
↕	↕	LM-11(41)	↕
LM	LDW280-60587	LM-10(40)	1EA

PART NO. LDW280-18719- 3&-4 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA3DR/1(460)	2
↕	↕	LTA-11(23)	↕
↕	↕	LM-14(44)	↕
↕	↕	LM-13(43)	↕
↕	↕	LM-12(42)	↕
↕	↕	LM-11(41)	↕
LM	LDW280-60540	LM-10(40)	2

PART NO. LDW280-18719-1 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -14

GRUMMAN REL INFO

PRIM NO.	4P001		
207	ME-16	10-31-9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
XX±.03 XXX±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ☐
CLASS II ENGRG CHANGE ☐
CLASS I ENGRG CHANGE ✓

LCD3994 PK 89

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	AMASONE 10/27/69
LAYOUT BY	D RAGAS Don Ragas 10-30
CHECKED BY	D.FASS 10-30-69
GR LEADER	Thomson 10-30-69
VEH DES INT	[illegible] 10-30-69
STRUCT	
STRUCT	10/31/69
PROJ ENGR	10/31/69
REL GROUP	J. March 10/31/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

(5)

CLIP ASSY
DESCENT STAGE- FWD UPPER
DECK - ELECTRICAL LINES SUPPORT

SIZE B | CODE IDENT NO. 26512 | LDW280-18719

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR-110569

01

NAS 9-1100

QTY PER ASSEMBLY -4	QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				NAS1097AD3	E	RIVET	IND STD						
1	1	1		NAS697C08		PLATE NUT	IND STD						
1				LDW280-18719 -14		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032x 2 x 3	T6	88	
	1			-13		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032x 2 x 3	T6	88	
		1		-11		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032x 2 x 2	T6	88	
				-4		CHANNEL ASSY							
				-3		CHANNEL ASSY					NONE	NONE	
				LDW280-18719 - 1	E	CLIP ASSY					NONE	NONE	
											NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18719

SCALE NONE

SHEET 2.00

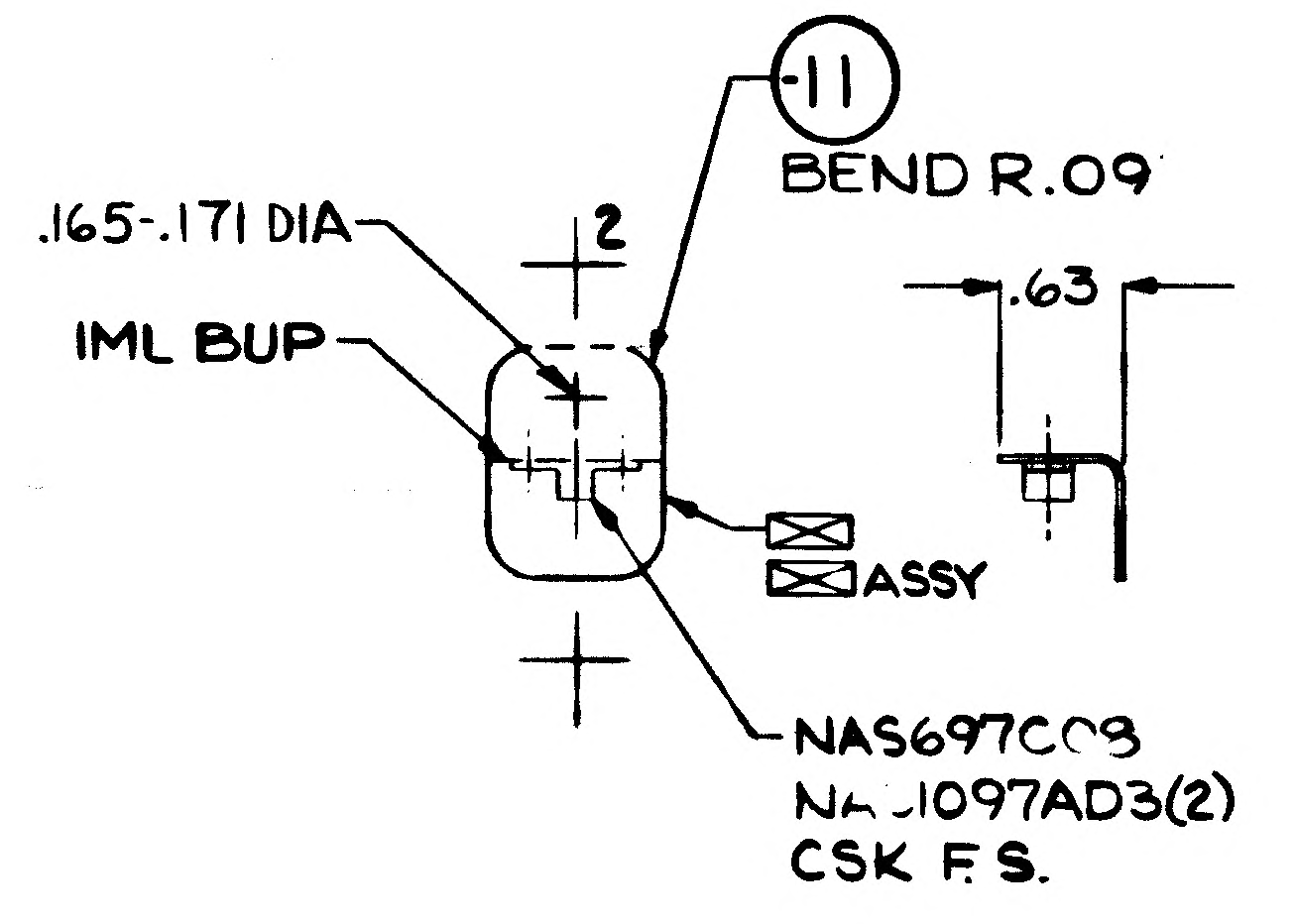
ENG 77.2 7-65

01

NAS 9-1100

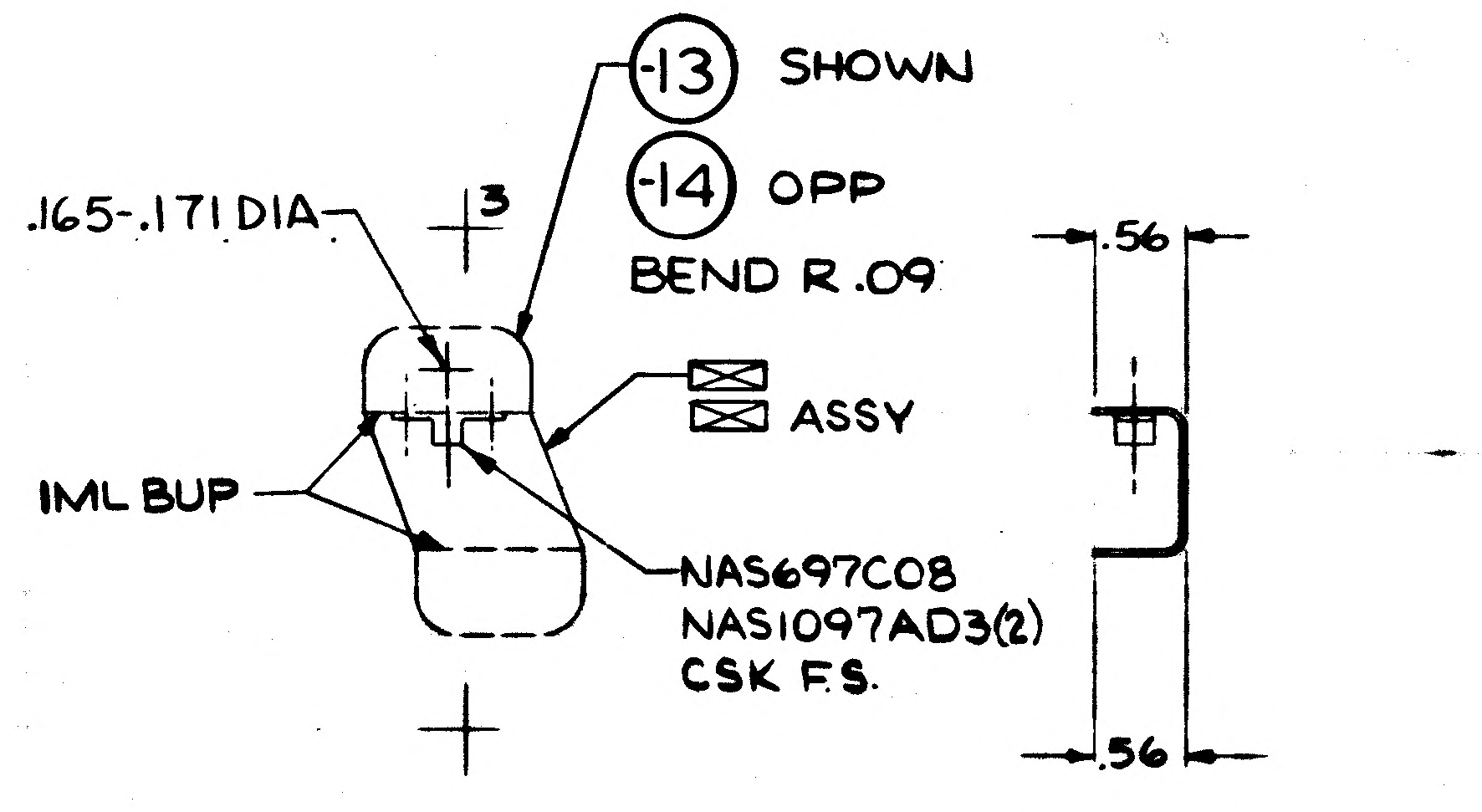
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH LSP 14-15302	✓
TOLERANCE ON LOFTED DELINEATIONS 1S±031	✓

NOTE :
1 NO TOOLING HOLES PERMITTED IN PARTS.



.165-.171 DIA
IML BUP
2
-11
BEND R.09
.63
☒
☒ ASSY
NAS697C08
NAS1097AD3(2)
CSK F.S.

LDW280-18719-1 ASSY



-13 SHOWN
-14 OPP
BEND R.09
.165-.171 DIA
3
IML BUP
☒
☒ ASSY
NAS697C08
NAS1097AD3(2)
CSK F.S.
.56
.56

LDW280-18719-3 ASSY (SHOWN)
-4 ASSY (OPP)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18719
SCALE FULL		SHEET 3.00

LDW280-18719

FOR PHOTO REPRODUCTION

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1846
CONTROL NO. LDW 280 B 9970		

FOR DWGS LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11 (23) EFF. FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-17998-23	E7	SEE DWG.	LDW280-60587
✓ LDW280-17989-11	A8	↑	↑
✓ LDW280-17985-11	B4		
✓ LDW280-17984-13	B5		
✓ LDW280-18718-23	A4		
✓ LDW280-18719-3,-4	A1		
LDW280-18772-15,-17,-18,-21,-23	A3	↓	↓
LDW280-18774-13,-15-19,-21	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: JK 2/18/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	2-18-70			2/13/70	2/16/70		2/16/70	2/18/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1846

021970
ISSUED BY A. GROSS / D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18720

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11(23)	1
↕	↕	LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18720-11

GAEC SCH NO.

WORK PKG. FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00									
REV										
SHEET	2.00									
REV										
SHEET	3.00	4.00								
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 JC(001) ME-16 8/5/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 .020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890, CCA2205

ECP A120 PKG50

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A. MASONE	RELIABILITY	
LAYOUT BY	G. CHAN 9/24/69		
CHECKED BY	J.D. COBB 7-22-69		
GP LEADER	7-29-69		
VEH DES INT	Thorjusen 7-29-69		
STRUCTURES		PROJ ENGR	8/2/69
STRUCTURES	NM 7-31-69	REL GROUP	Bauman 8/5/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ R. H.
UPPER DECK

SIZE B

CODE IDENT NO. 26512

LDW280-18720

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-66

CDR 8-15-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18720-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050x58x58	SEE NOTE #3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPACE, L. I., NEW YORK

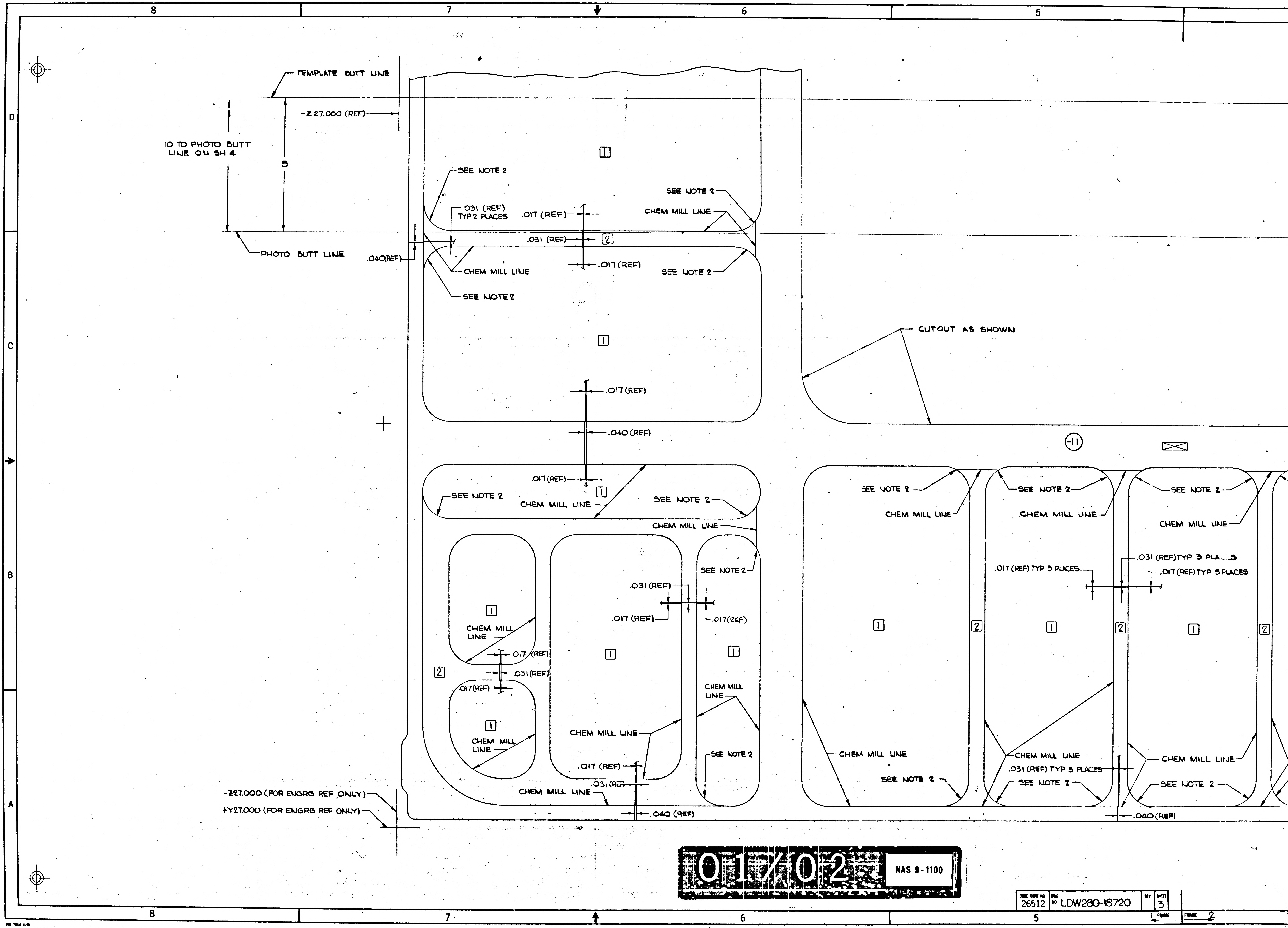
SIZE	CODE IDENT NO.	
B	26512	LDW280-18720

SCALE NONE SHEET 2 00

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
TEMPLATE BUTT LINE
-Z 27.000 (REF)
10 TO PHOTO BUTT LINE ON SH 4
5
PHOTO BUTT LINE
.040(REF)
SEE NOTE 2
.031 (REF) TYP 2 PLACES
.017 (REF)
.031 (REF)
.017 (REF)
CHEM MILL LINE
SEE NOTE 2
1
2
CUTOUT AS SHOWN
.040 (REF)
-11
.031 (REF) TYP 3 PLACES
.017 (REF) TYP 3 PLACES
.031(REF)
.017(REF)
.031 (REF)
.040 (REF)
-Z27.000 (FOR ENGRG REF ONLY)
+Y27.000 (FOR ENGRG REF ONLY)

01/02

NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18720		3

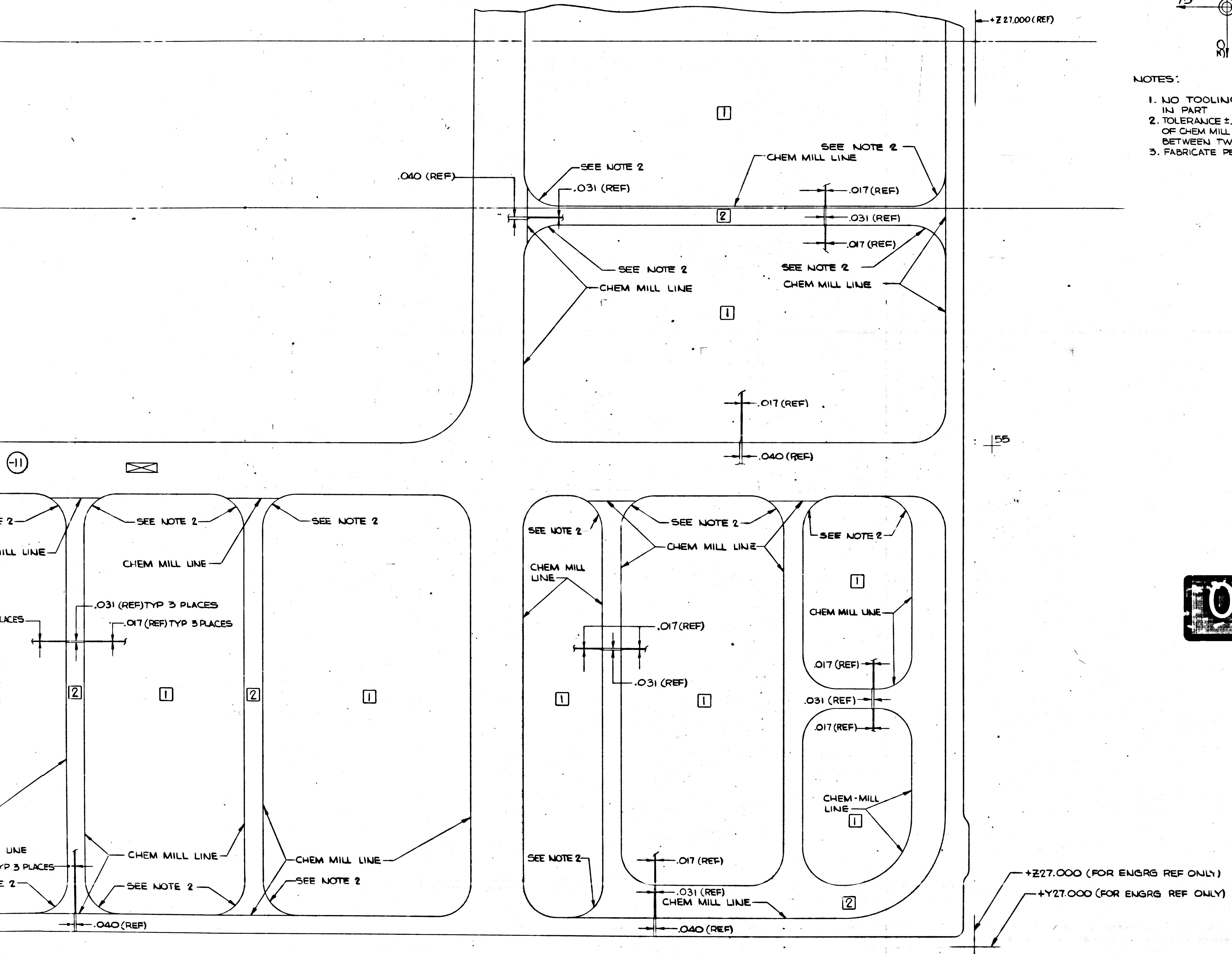
TEAM + OVERLAY & [illegible]
6-2-69 #2 [illegible]

ZONE	LTR	REVISIONS DESCRIPTION	~~EFF CODE~~	MODEL	DATE	APPROVED

ENG 771.2 4-67

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓


+Z 27.000 (REF)
75
0
.040 (REF)
SEE NOTE 2
.031 (REF)
SEE NOTE 2
CHEM MILL LINE
.017 (REF)
.031 (REF)
.017 (REF)
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
1
2
.017 (REF)
.040 (REF)
55
-11
SEE NOTE 2
CHEM MILL LINE
.031 (REF) TYP 3 PLACES
.017 (REF) TYP 3 PLACES
LINE
TYP 3 PLACES
CHEM MILL LINE
SEE NOTE 2
.040 (REF)
SEE NOTE 2
CHEM MILL LINE
.017 (REF)
.031 (REF)
SEE NOTE 2
CHEM-MILL LINE
.017 (REF)
.031 (REF)
.017 (REF)
.031 (REF)
CHEM MILL LINE
.040 (REF)
+Z27.000 (FOR ENGRG REF ONLY)
+Y27.000 (FOR ENGRG REF ONLY)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES
3. FABRICATE PER LPC280-43

02/02
NAS 9-1100

LDW280-18720-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.017±.002	.023 REF
2	.031±.002	.009 REF

~~FOR PARTS LIST, USAGE DATA, AND DWG GN STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL	.XX	± .03	DRAWN BY	
	.XXX	± .010	LAYOUT BY	
ANGULAR TOL		± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS			GR LEADER	
			REL GROUP	
			PROJ ENGR	
			GOVT APPD	

SIZE	CODE IDENT NO.	
J	26512	LDW280-18720
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2 2FR

DISTR. LIST #

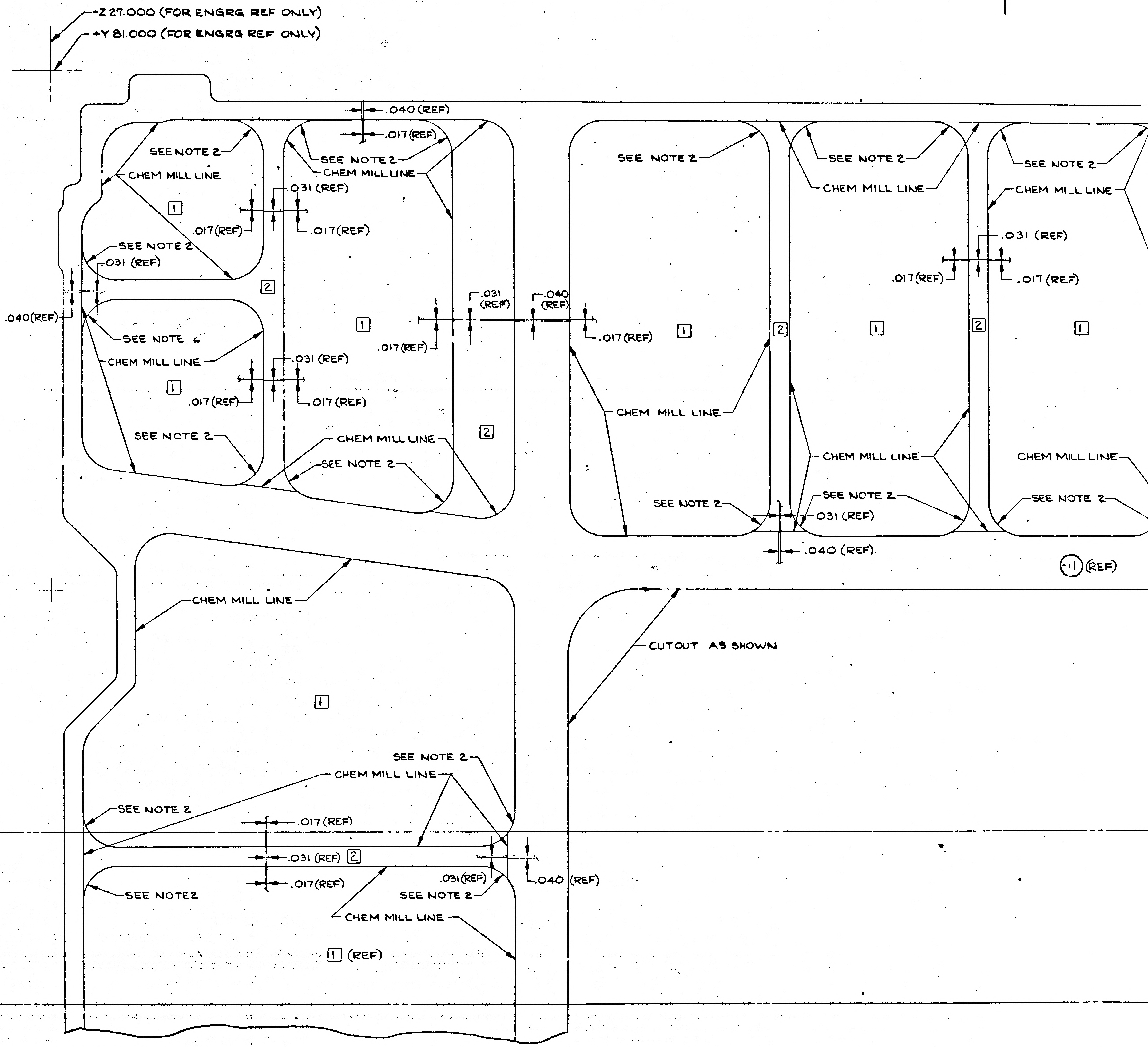
LDW280-18720

LDW280-18720

	REV	SHEET
LDW280-18720		3

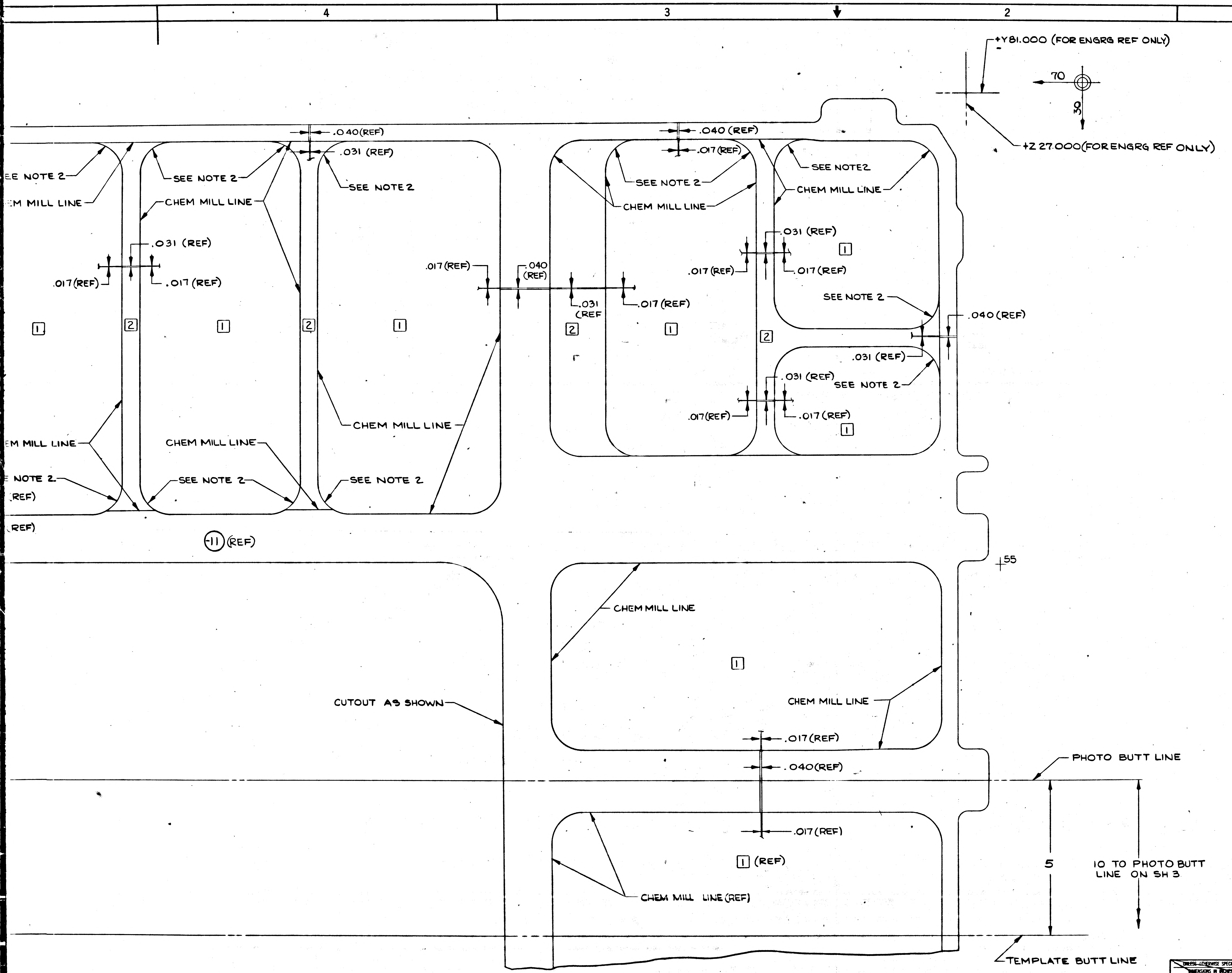
1 FRAME
FRAME 2

PRINTING INFO ONLY
DWG SIZE 34 X 88
FULL SIZE SHEET AREA (34 X 88) = 24.5 SQ FT


-Z 27.000 (FOR ENGRG REF ONLY)
+Y 81.000 (FOR ENGRG REF ONLY)
.040 (REF)
.017 (REF)
SEE NOTE 2
CHEM MILL LINE
.031 (REF)
.017 (REF)
.017 (REF)
1
2
SEE NOTE 2
.031 (REF)
.040 (REF)
SEE NOTE 2
CHEM MILL LINE
1
.031 (REF)
.017 (REF)
.017 (REF)
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
.017 (REF)
.031 (REF)
.040 (REF)
.017 (REF)
1
2
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
.031 (REF)
.040 (REF)
.031 (REF)
.017 (REF)
.017 (REF)
-11 (REF)
CHEM MILL LINE
CUTOUT AS SHOWN
1
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
.017 (REF)
.031 (REF)
2
.017 (REF)
.031 (REF)
.040 (REF)
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
1 (REF)
H
G
F
E
8
7
6
5

01/021 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18720		4



4
3
2
+Y81.000 (FOR ENGRG REF ONLY)
70
30
+Z 27.000 (FOR ENGRG REF ONLY)
.040 (REF)
.031 (REF)
.040 (REF)
.017 (REF)
EE NOTE 2
SEE NOTE 2
SEE NOTE 2
SEE NOTE 2
SEE NOTE 2
M MILL LINE
CHEM MILL LINE
CHEM MILL LINE
CHEM MILL LINE
.031 (REF)
.017 (REF)
.017 (REF)
.017 (REF)
.040 (REF)
.031 (REF)
.017 (REF)
.031 (REF)
.017 (REF)
.017 (REF)
SEE NOTE 2
.040 (REF)
.031 (REF)
.031 (REF)
SEE NOTE 2
.017 (REF)
.017 (REF)
1
2
CHEM MILL LINE
M MILL LINE
CHEM MILL LINE
NOTE 2
SEE NOTE 2
SEE NOTE 2
REF)
REF)
-11 (REF)
+55
CHEM MILL LINE
CUTOUT AS SHOWN
CHEM MILL LINE
.017 (REF)
.040 (REF)
PHOTO BUTT LINE
.017 (REF)
1 (REF)
CHEM MILL LINE (REF)
5
10 TO PHOTO BUTT LINE ON SH 3
TEMPLATE BUTT LINE
H
G
F
E
LDW280-18720
LDW280-18720

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.~~

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES

LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.

DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18720

SCALE FULL
SHEET 4.00 OF

FOR PHOTO 1 REPRODUCTION 2FR 2K

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (98 X 98) = 24.5 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

DWG NO LDW280-18720 REV SHEET 4

FRAME FRAME

02/02

NAS 9-1100

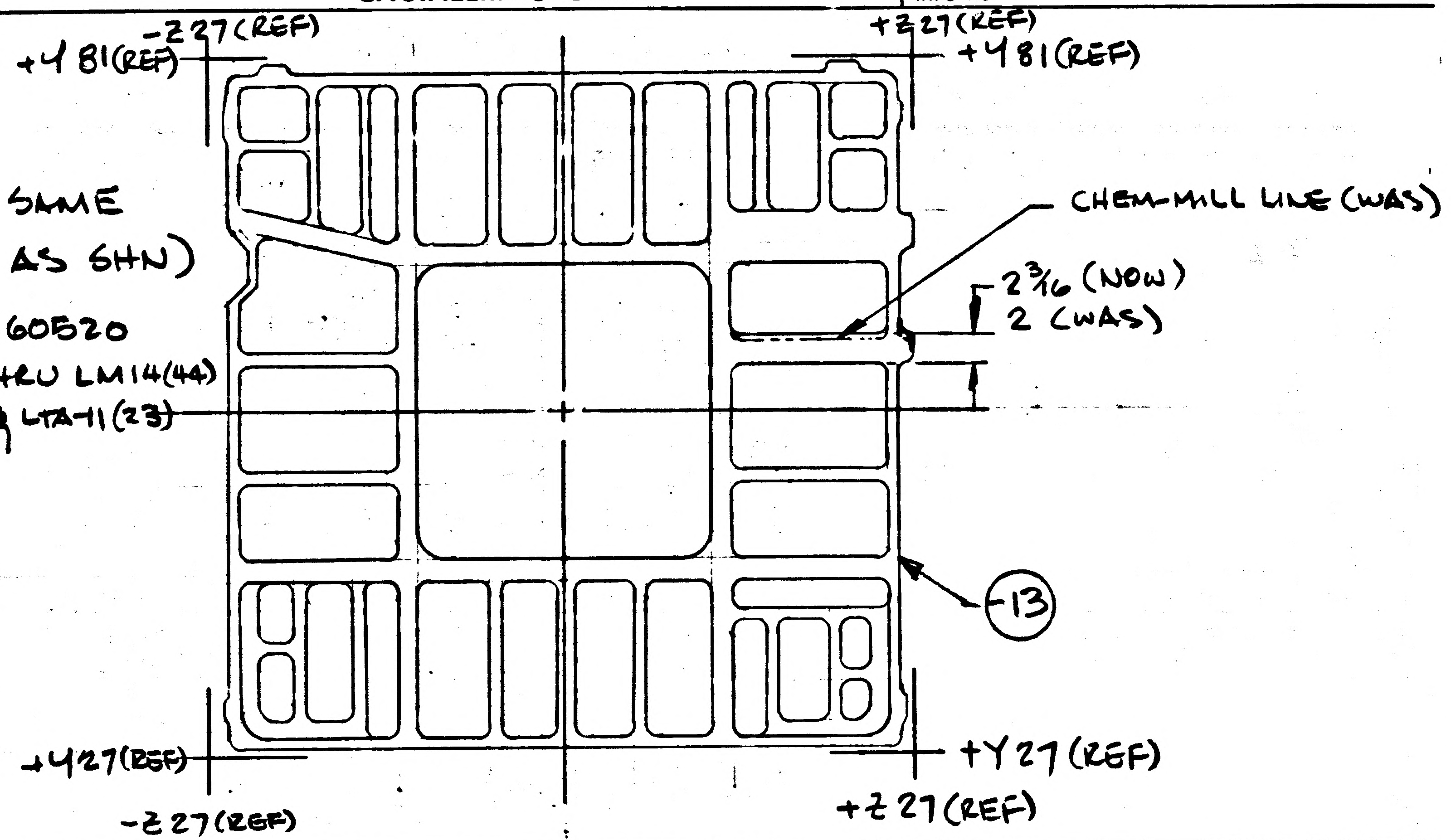
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18720 | EO NO. A1
CONTROL INFO NO. LDW280B8519

REMOVE -11
ADD -13 (-13 SAME AS -11 EXCEPT AS SHN)
-13 N/A LDW280-60520
EFF. LM10 (40) THRU LM14(44)
LTA 3 DR/1 (460) & LTA-11 (23)
1/MOD.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 50 Pg 5 ⑤

REASON FOR EO: INCREASE CHEM-MILL LAND WIDTH FOR H_2O TANK TRUSS SPT FITTING

DESCRIPTION OF EO: REMOVED -11 & ADDED -13

GAEC EO RELEASE: 8-11-69; JK 8/13/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44)	
		LTA3DR/1(460)	
		& LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-11
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					N.M.			
DATE	8-6-69			8/6/69	8-8-69		8/9/69	8-12-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB-DESCENT STAGE-RH UPPER DECK	LDW280-18720	A1

8/13/69
ISSUED BY G. CHAN / G HANSMANN X87222 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

01
NAS 9-1100

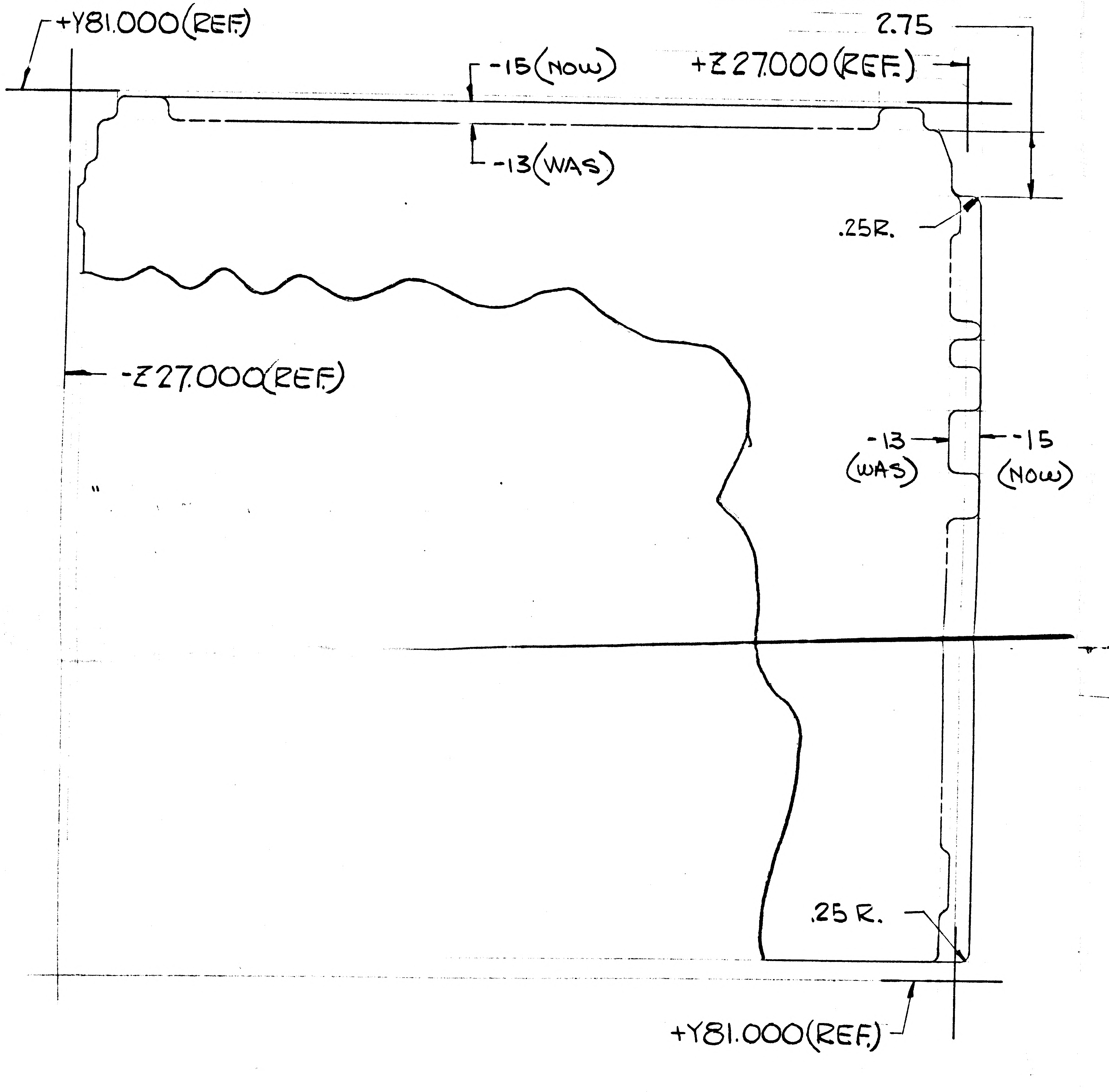
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18720
EO NO. A2
CONTROL INFO NO. LDW280B8345

CREATE -15 (IDENTICAL TO -13 EXCEPT AS SHOWN.),
QTY & N/A FOR -15 SAME AS -13.
SCRAP -13

TO BE LOFTED.



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 69 (5)

REASON FOR EO: DESIGN VEHICLE FOR 37,000# GROSS WT. REF. CDR LMMP RFA 2.11-1A

DESCRIPTION OF EO: REMOVED -13. ADDED -15

GAEC EO RELEASE: JK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44),	LTA-11(23)
		& LTA-3 DR/	1 (460)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -13

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					W/61			
DATE	9/17/69			9/17/69	9/17/69		9/18/69	9/18/69

PRIORITY: C

DRAWING TITLE: WEB ~ DESCENT STAGE ~ R.H UPPER DECK

DRAWING NO. LDW280-18720

EO NO. A2

9/18/69 ISSUED BY J. TAVARES x 86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18721

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-60521	LTA-1 (23)	1
↕	↕	LTA-3DR/1(46)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1

PART NO. LDW280-18721-11 — GAEC SCH NO.

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00									
REV										
SHEET	2.00									
REV										
SHEET	3.00	4.00								
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	ME-16	8/2/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 CCA 2205

CONTRACT NO. NAS9 - 1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF		
LAYOUT BY	D. SHAPIRO		
CHECKED BY	J.D. COBB 7-24-69		
GP LEADER	7-24-69		
VEH DES INT	7/25/69		
STRUCTURES		PROJ ENGR	8/1/69
STRUCTURES	NM 7-31-69	REL GROUP	Botte 8-2-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ L.H.
UPPER DECK

SIZE B — CODE IDENT NO. 26512 — LDW280-18721

SCALE NONE — SHEET 1.00 OF 4

ENG 77.1 12-65

ECPA120

CDR 8-15-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18721-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 57 x 58	SEE	NOTE	3

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2(GRUMMAN), LPC-19-3(VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18721

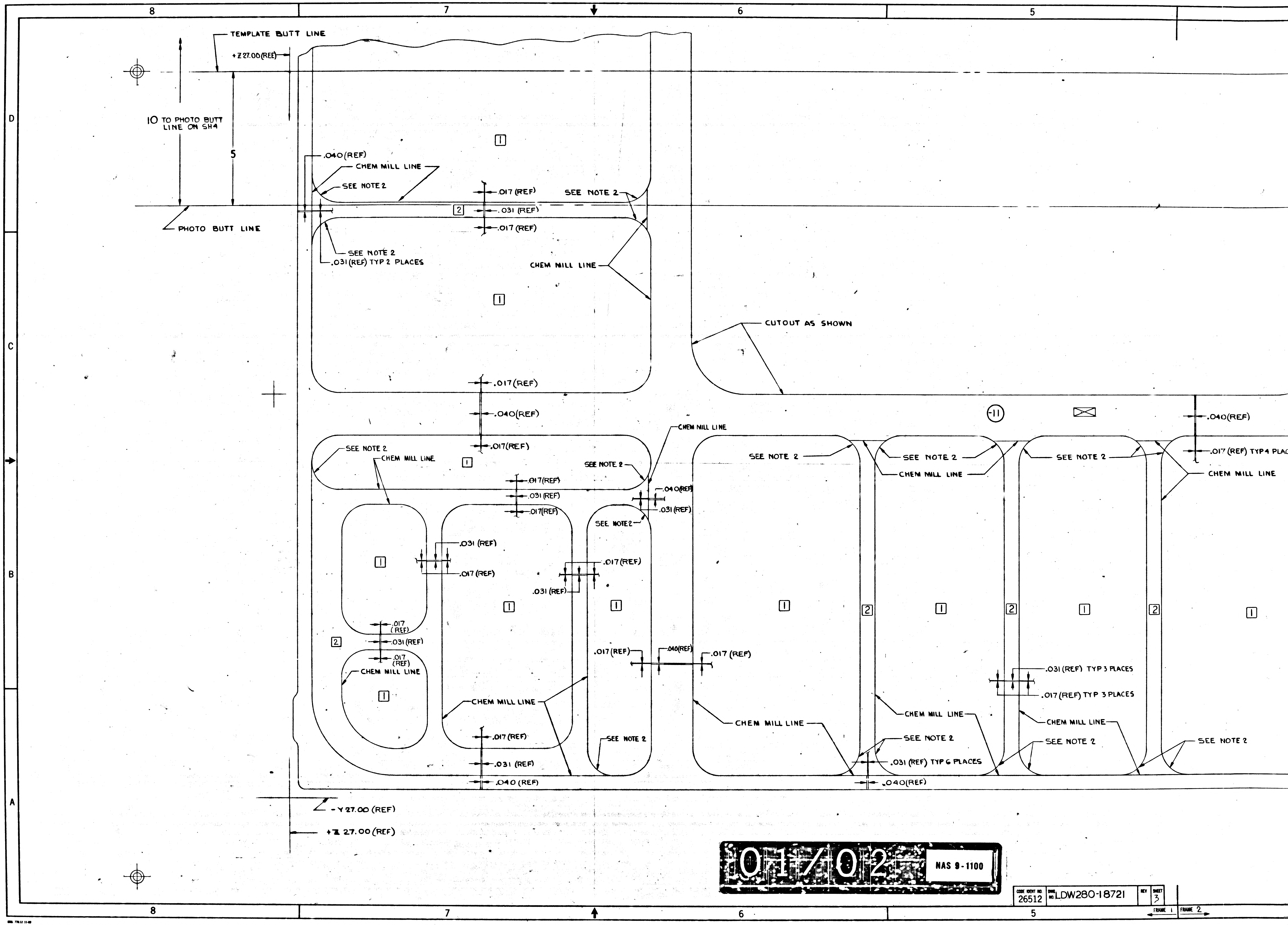
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



8
7
6
5
D
C
B
A
TEMPLATE BUTT LINE
+Z 27.00 (REF)
10 TO PHOTO BUTT LINE ON SH4
5
PHOTO BUTT LINE
.040 (REF)
CHEM MILL LINE
SEE NOTE 2
.017 (REF)
.031 (REF)
.017 (REF)
SEE NOTE 2
2
SEE NOTE 2
.031 (REF) TYP 2 PLACES
CHEM MILL LINE
1
1
CUTOUT AS SHOWN
.017 (REF)
.040 (REF)
.017 (REF)
11
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
1
SEE NOTE 2
.017 (REF)
.031 (REF)
.017 (REF)
.040 (REF)
.031 (REF)
SEE NOTE 2
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
.040 (REF)
.017 (REF) TYP 4 PLACES
.031 (REF)
.017 (REF)
.017 (REF)
.031 (REF)
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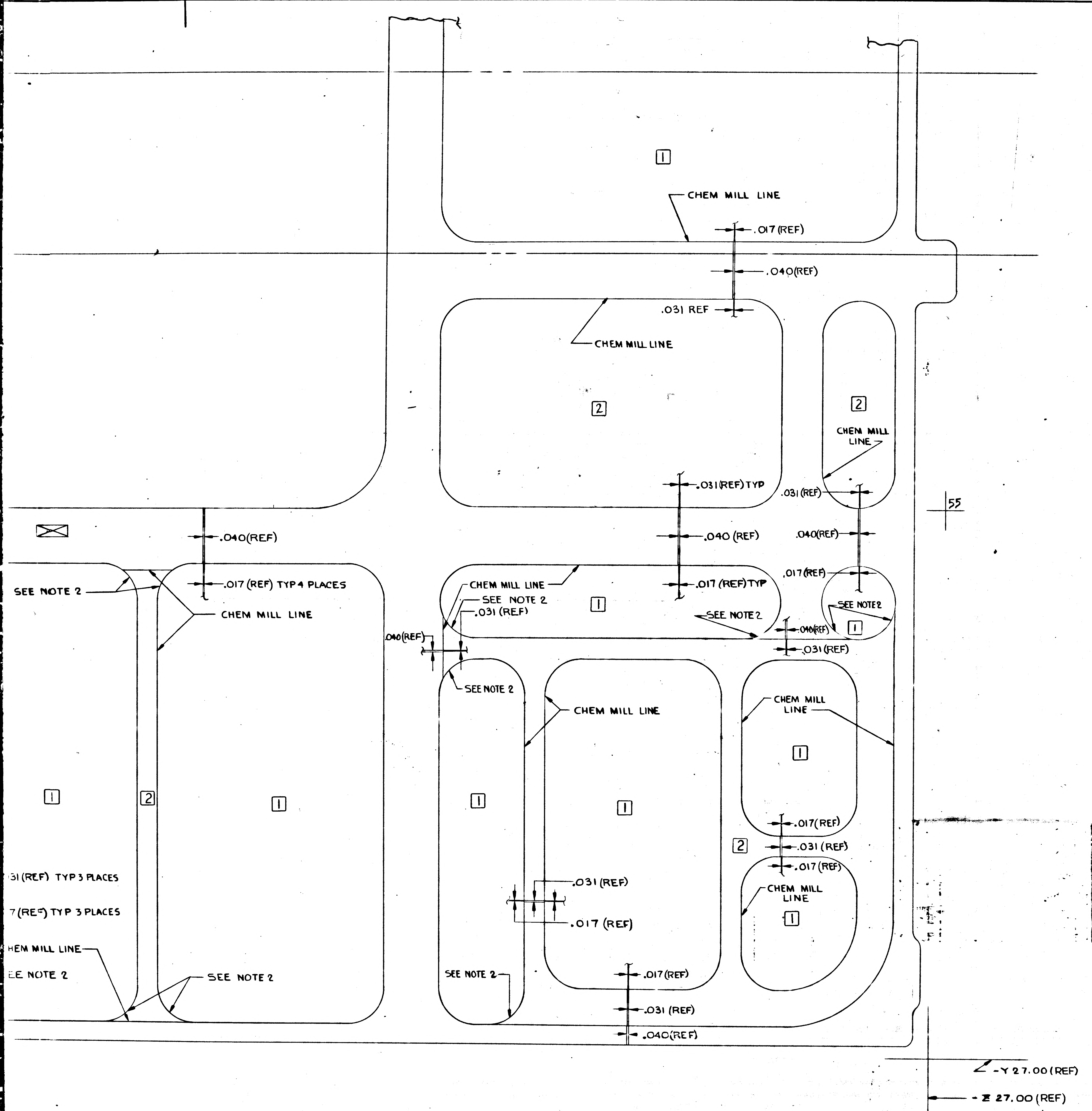
.040 (REF)
.017 (REF)
.017 (REF)
2
.031 (REF)
.017 (REF)
CHEM MILL LINE
1
.031 (REF) TYP 3 PLACES
.017 (REF) TYP 3 PLACES
CHEM MILL LINE
CHEM MILL LINE
CHEM MILL LINE
CHEM MILL LINE
CHEM MILL LINE
SEE NOTE 2
.017 (REF)
.031 (REF)
.040 (REF)
SEE NOTE 2
SEE NOTE 2
.031 (REF) TYP 6 PLACES
SEE NOTE 2
SEE NOTE 2
.040 (REF)
-Y 27.00 (REF)
+Z 27.00 (REF)
FRAME 1
FRAME 2

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18721		3


CHEM MILL LINE
.017 (REF)
.040(REF)
.031 REF
CHEM MILL LINE
1
2
2
CHEM MILL LINE
.031(REF) TYP
.031 (REF)
.040(REF)
.040 (REF)
.040(REF)
55
.017 (REF) TYP 4 PLACES
SEE NOTE 2
CHEM MILL LINE
CHEM MILL LINE
SEE NOTE 2
.031 (REF)
.017 (REF) TYP
SEE NOTE 2
.017(REF)
SEE NOTE2
.040(REF)
.031(REF)
.040(REF)
SEE NOTE 2
CHEM MILL LINE
CHEM MILL LINE
1
1
1
1
1
1
2
.017(REF)
.031 (REF)
.017 (REF)
2
CHEM MILL LINE
1
.31(REF) TYP 3 PLACES
7(REF) TYP 3 PLACES
HEM MILL LINE
EE NOTE 2
SEE NOTE 2
SEE NOTE 2
.031 (REF)
.017 (REF)
.017(REF)
.031 (REF)
.040(REF)
-Y 27.00(REF)
-Z 27.00(REF)

ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

REVISIONS

70
30

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN. NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG 771.2 4-67

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
3. FABRICATE WEB PER LPC 280-43

LDW280-18721 -11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.017 $^{+.002}_{-.002}$	.023 REF
2	.031 $^{+.002}_{-.002}$	.009 REF
☐		

02/02

NAS 9-1100

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18721

SCALE FULL
SHEET 3.00

LDW280-18721 REV SHEET 3

FRAME 1 FRAME 2

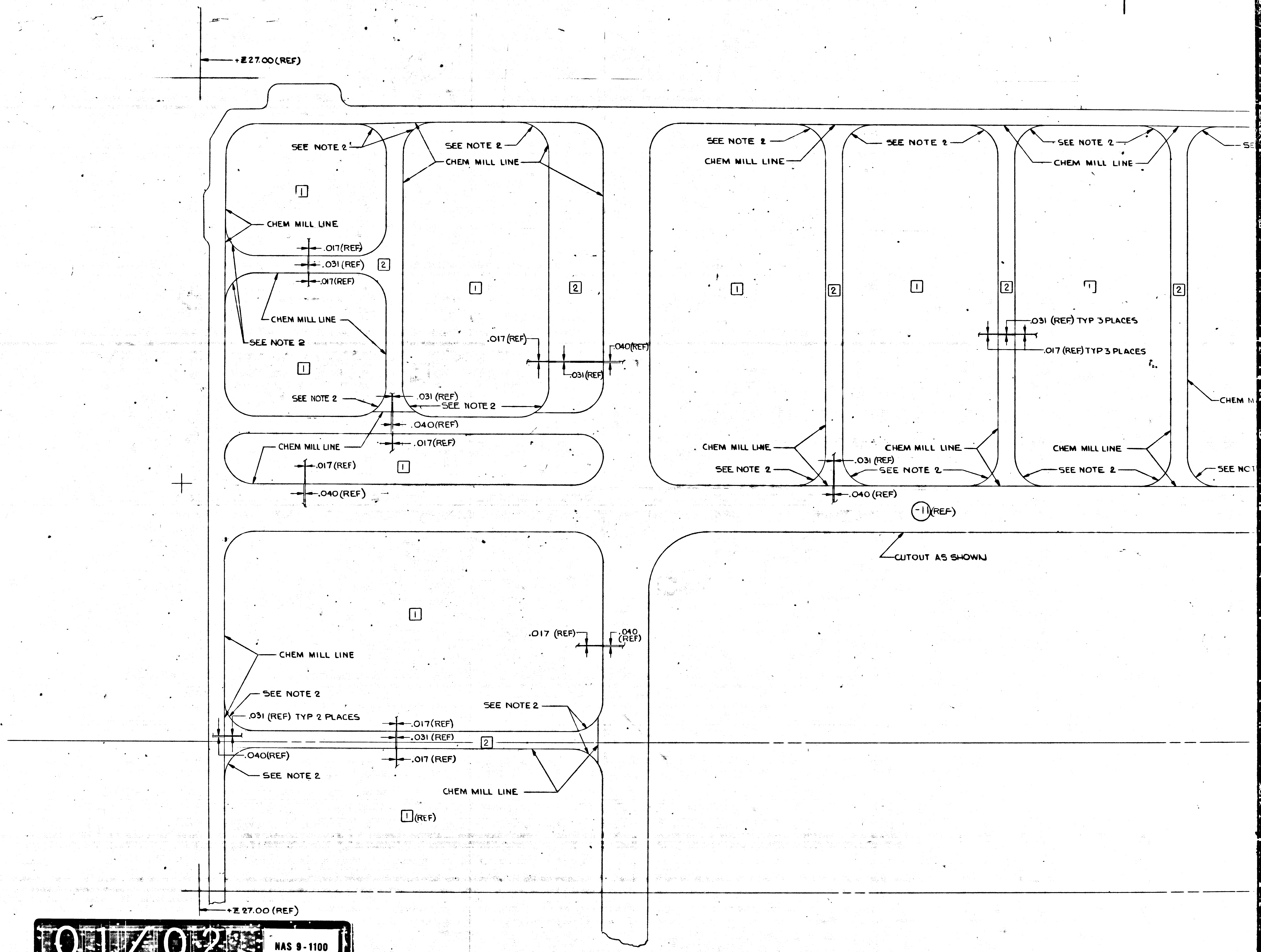
FOR PHOTO 1 REPRODUCTION 2FR K2

DISTR. LIST #

LDW280-18721

LDW280-18721

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ FT
½ SIZE SHEET AREA (¼ OF FULL)= 6.5 SQ FT


+Z 27.00 (REF)
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
1
CHEM MILL LINE
.017(REF)
.031 (REF)
2
.017(REF)
CHEM MILL LINE
SEE NOTE 2
1
1
2
.017 (REF)
.040(REF)
.031 (REF)
SEE NOTE 2
.031 (REF)
SEE NOTE 2
.040(REF)
CHEM MILL LINE
.017(REF)
.017 (REF)
1
.040 (REF)
SEE NOTE 2
CHEM MILL LINE
1
2
SEE NOTE 2
1
2
SEE NOTE 2
CHEM MILL LINE
1
2
.031 (REF) TYP 3 PLACES
.017 (REF) TYP 3 PLACES
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
.031 (REF)
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
.040 (REF)
-11 (REF)
CUTOUT AS SHOWN
1
.017 (REF)
.040 (REF)
CHEM MILL LINE
SEE NOTE 2
.031 (REF) TYP 2 PLACES
SEE NOTE 2
.017(REF)
.031 (REF)
2
.040(REF)
.017 (REF)
SEE NOTE 2
CHEM MILL LINE
1 (REF)
+Z 27.00 (REF)

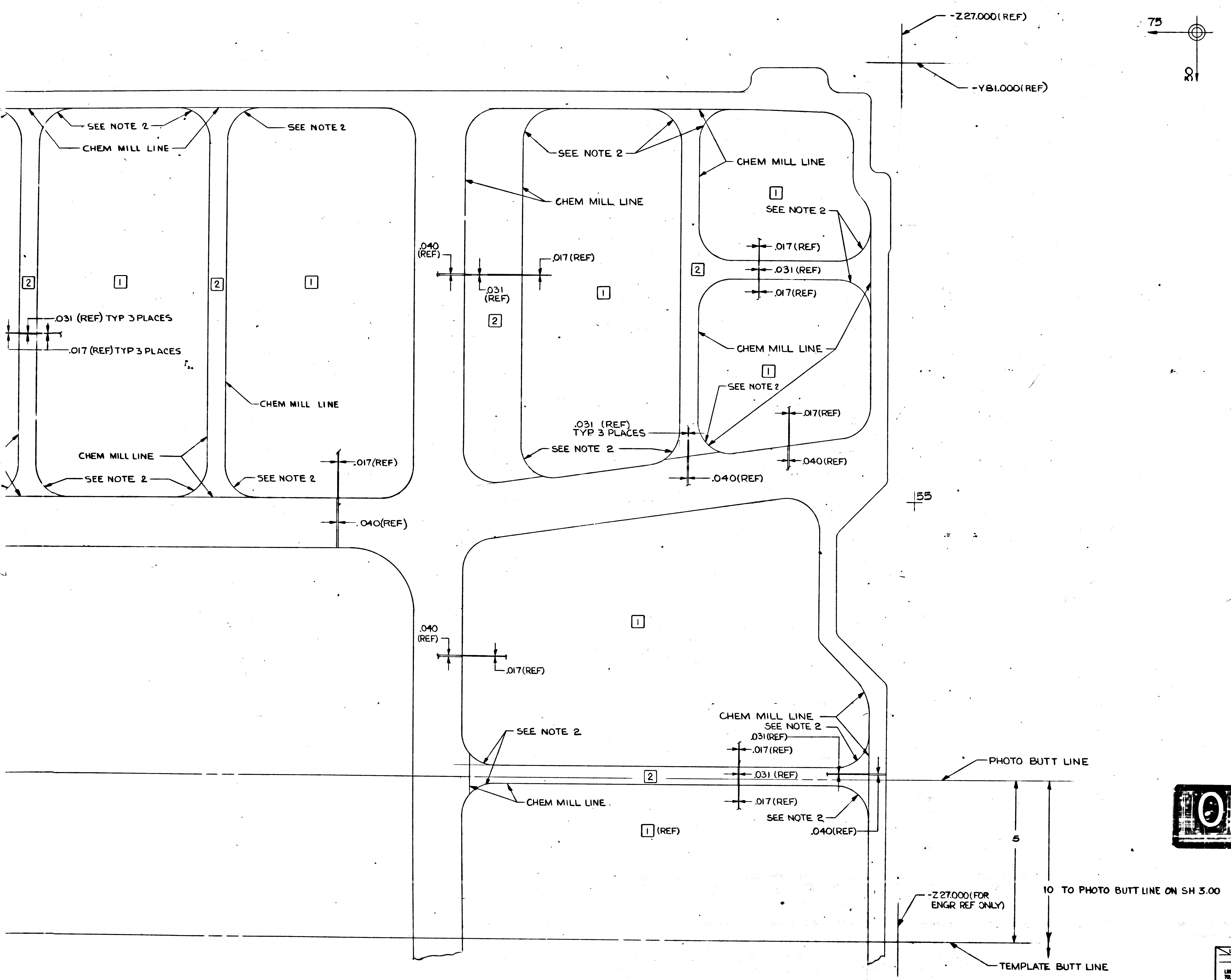
01/02 NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18721		4

FRAME 1 FRAME 2

Team - overlay & Geo
6-2-69
F2

ZONE	LTR	REVISIONS DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED



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-Y81.000 (REF)
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SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
1
SEE NOTE 2
2
1
2
1
.031 (REF) TYP 3 PLACES
.017 (REF) TYP 3 PLACES
CHEM MILL LINE
CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
.040 (REF)
.017 (REF)
.031 (REF)
2
1
.017 (REF)
.031 (REF)
.017 (REF)
2
CHEM MILL LINE
1
SEE NOTE 2
.017 (REF)
.031 (REF) TYP 3 PLACES
SEE NOTE 2
.040 (REF)
.040 (REF)
.017 (REF)
.040 (REF)
55
.040 (REF)
.017 (REF)
1
CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
.031 (REF)
.017 (REF)
2
.031 (REF)
.017 (REF)
CHEM MILL LINE
SEE NOTE 2
.040 (REF)
1 (REF)
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SH 3.00
-Z27.000 (FOR ENGR REF ONLY)
TEMPLATE BUTT LINE

02/02

NAS 9-1100

D C B A

LDW280-18721

LDW280-18721

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL	.XX	± .03	DRAWN BY	
	.XXX	± .010	LAYOUT BY	
ANGULAR TOL		± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS			GR LEADER	
			REL GROUP	
			PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18721
			GOVT APPD	SCALE FULL · SHEET 4.00

FOR PHOTO 1 REPRODUCTION 2FR K2

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

LDW280-18721	REV	SHEET 4

FRAME 1 FRAME 2

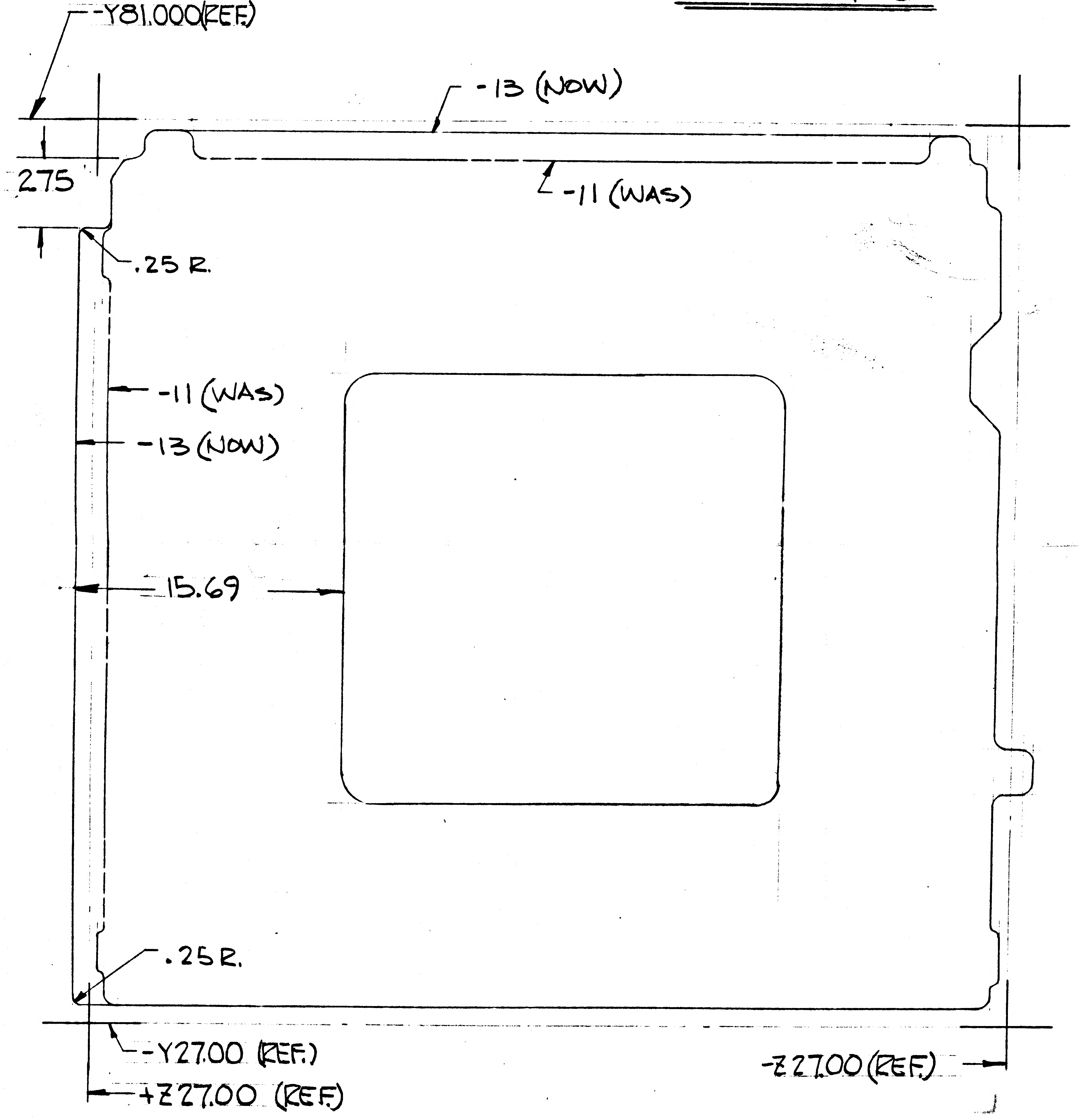
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18721
EO NO. A1
CONTROL INFO NO. LDW280B8346

CREATE -13, (IDENTICAL TO -11 EXCEPT AS SHOWN). QTY & N/A FOR -13 SAME AS -11.
SCRAP -11

TO BE LOFTED.



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 69

REASON FOR EO: DESIGN VEHICLE FOR 37000# GROSS WT. REF. CDR LMMP RFA 2.11-1A

DESCRIPTION OF EO: REMOVED -11. ADDED -13.

GAEC EO RELEASE: (5) JK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44)	, LTA-11(23)
		& LTA-3 DR	/1(460)

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP -11

APPROVED BY									
DATE	9/17/69			9/17/69	9/17/69		9/17/69	9/18/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: WEB ~ DESCENT STAGE ~ LH. UPPER DECK
DRAWING NO. LDW280-18721
EO NO. A1

9/18/69
ISSUED BY J. TAVARES x86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18722

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA3DR/1(460)	1 EA
↕	↕	LTA-11 (23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA
PART NO. LDW280-18722-11 & -13		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REC INFO			
LAST DASH NO. USED	-13	PRIM NO.	JK(001)		
		207	ME-16	8/1/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD3890 CCA2205
ECP A120

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	MURPHY CONROY 6-14-69		
LAYOUT BY	J.LANG 7/21/69		
CHECKED BY	J.D.COBB 6-30-69		
GR LEADER	Thorgimen 7-22-69		
VEH DES INT	J. Pisatari 7/24/69		
STRUCTURE	JS NM 7/26/69	PROJ ENGR	7/26/69
STRUCTURE		REL GROUP	B. Marsh 7-31-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ FORWARD
UPPER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18722
SCALE	NONE	SHEET 1.00 OF 4

CDR 8-15-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18722-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 × 19 × 59	SEE NOTE 3		
								LDW280-18722-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 × 43 × 59	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN), LPC-19-3 (VENDOR)

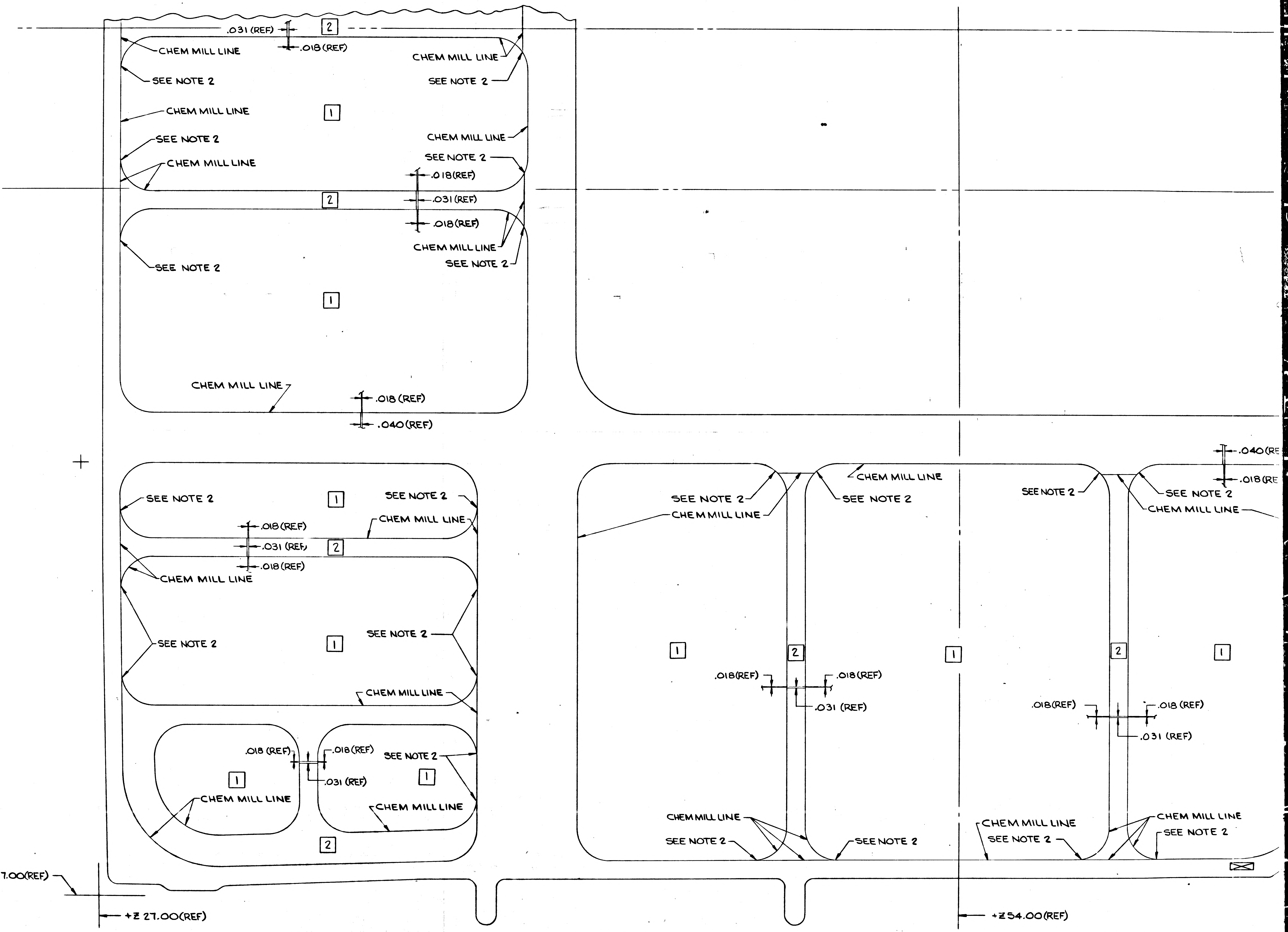
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18722
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



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SEE NOTE 2
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SEE NOTE 2
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SEE NOTE 2
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SEE NOTE 2
.018(REF)
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.018(REF)
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SEE NOTE 2
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.031 (REF)
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CHEM MILL LINE
CHEM MILL LINE
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SEE NOTE 2
CHEM MILL LINE
CHEM MILL LINE
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SEE NOTE 2
CHEM MILL LINE
.040 (RE
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.018(REF)
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.031 (REF)
.018(REF)
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CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
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SEE NOTE 2
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SEE NOTE 2
-Y27.00(REF)
+Z 27.00(REF)
+Z54.00(REF)

8 7 6 5

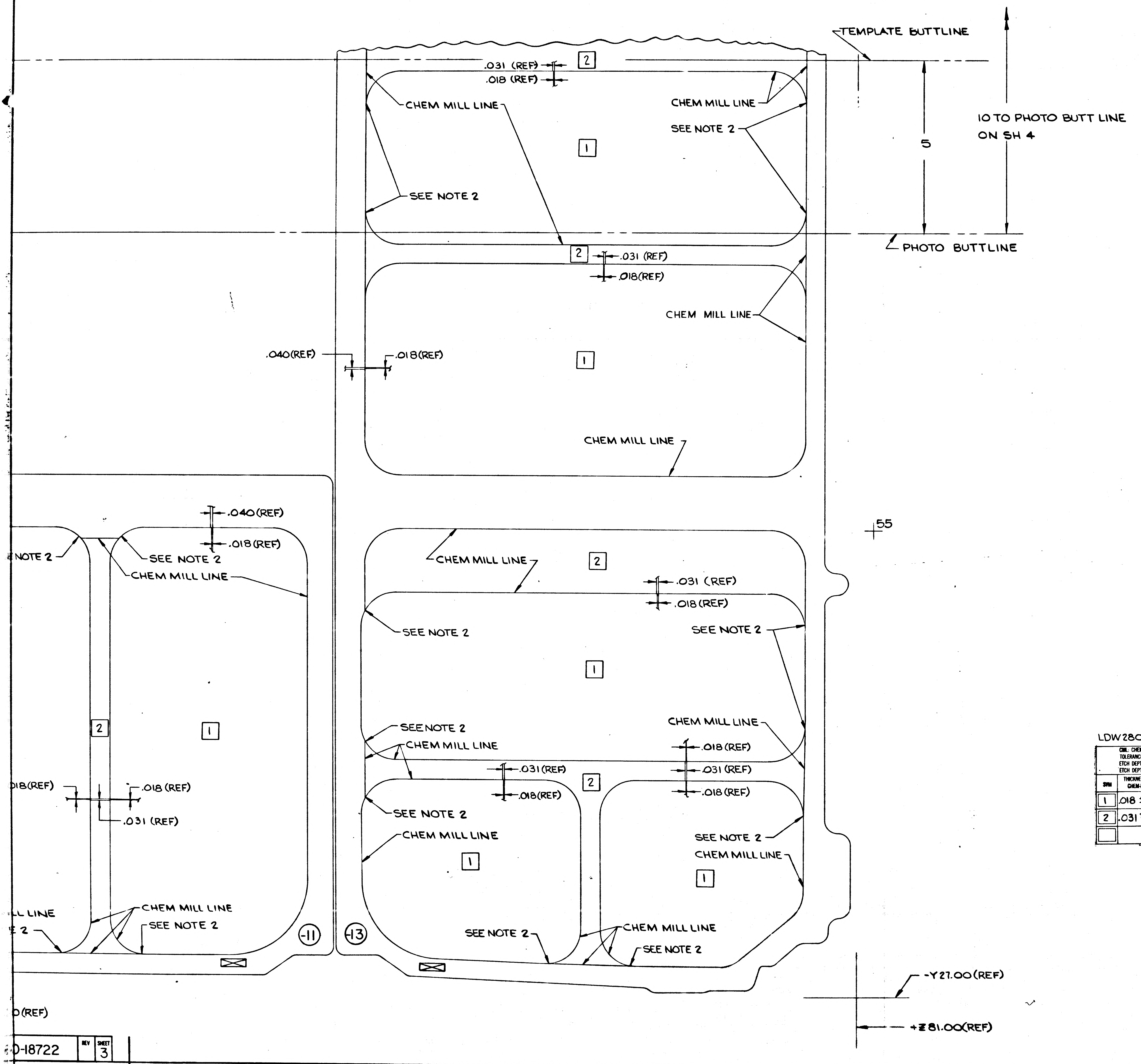
D C B A

01/02

NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18722		3

FRAME 2



TEMPLATE BUTTLINE
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SEE NOTE 2
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SEE NOTE 2
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5
PHOTO BUTTLINE
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.018(REF)
CHEM MILL LINE
.040(REF)
.018(REF)
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CHEM MILL LINE
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.018(REF)
NOTE 2
SEE NOTE 2
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.031 (REF)
.018 (REF)
SEE NOTE 2
SEE NOTE 2
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SEE NOTE 2
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.018(REF)
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SEE NOTE 2
CHEM MILL LINE
1
SEE NOTE 2
CHEM MILL LINE
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LL LINE
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CHEM MILL LINE
SEE NOTE 2
-11
-13
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
-Y27.00(REF)
0(REF)
+Z81.00(REF)

75
30

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
3. FABRICATE PER LPC 280-43
4. WEIGHT OF -11 CHEM MILL WEB AFTER FINAL TRIM (BUT BEFORE PILOT HOLES ARE DRILLED) SHALL NOT EXCEED 4.15 POUNDS.
5. WEIGHT OF -13 CHEM MILL WEB AFTER FINAL TRIM (BUT BEFORE PILOT HOLES ARE DRILLED) SHALL NOT EXCEED 2.12 POUNDS

~~REVISIONS~~

ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

LDW280-18722-11&-13

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.018 ±.002	.022(REF)
2	.031 ±.002	.009(REF)

02/02

NAS 9-1100

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES	
LINEAR TOL .XX	± .03
LINEAR TOL .XXX	± .010
ANGULAR TOL	± 0°30'
TOL ON LOFTED DELINEATIONS IS	

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE J
CODE IDENT NO. 26512
LDW280-18722
SCALE FULL
SHEET 3.00 OF

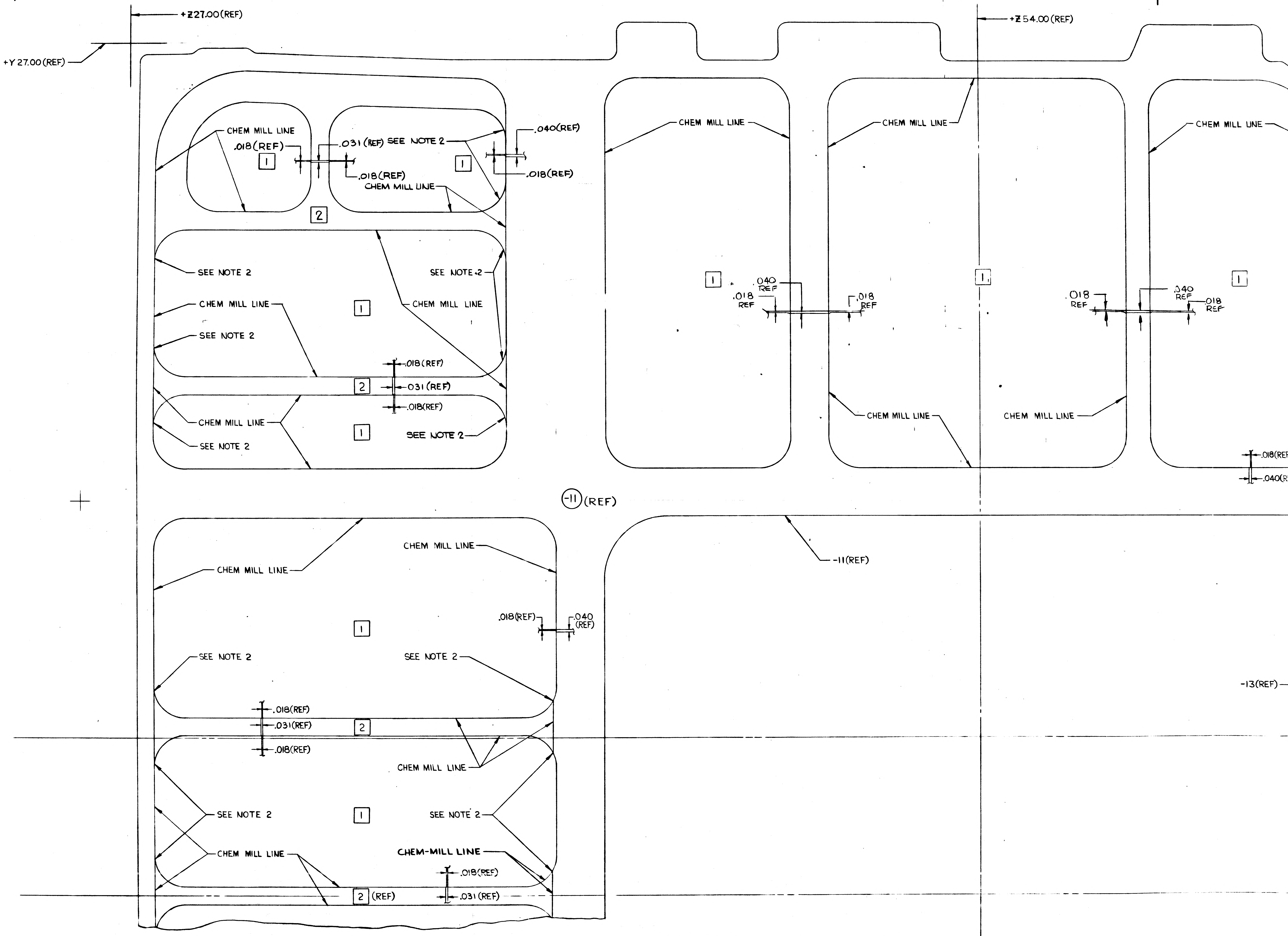
1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 88
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT

LDW280-18722
LDW280-18722

0-18722 REV SHEET 3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+Y 27.00 (REF)
+Z 54.00 (REF)
CHEM MILL LINE
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SEE NOTE 2
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.018 REF
.018 REF
.018 REF
.040 REF
.018 REF
-11 (REF)
-11 (REF)
-13 (REF)
.018 (REF)
.040 (REF)
.018 (REF)
.031 (REF)
.018 (REF)
2 (REF)
CHEM-MILL LINE

01/02

NAS 9-1100

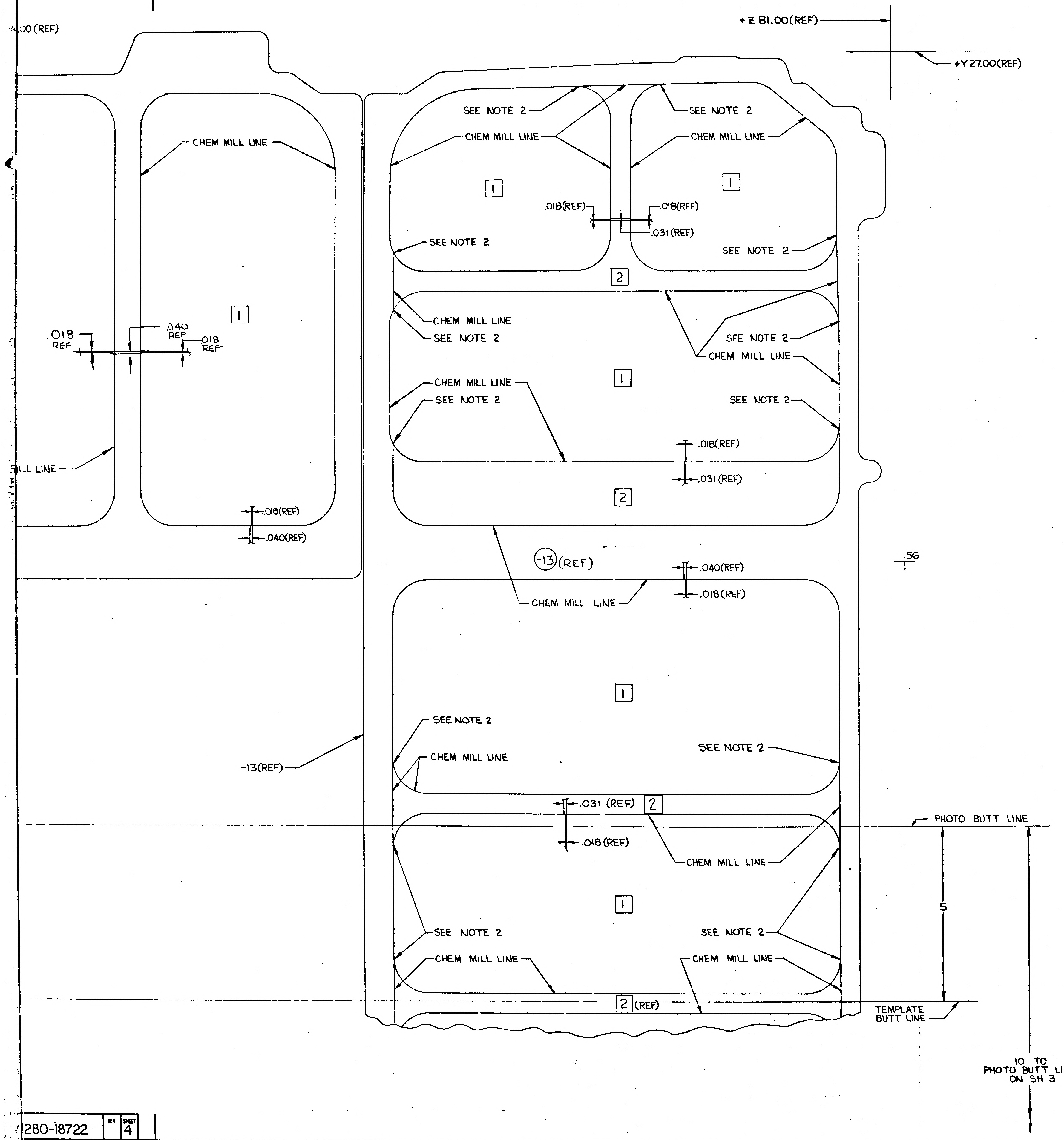
CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18722		4

FRAME 1 ← | FRAME → 2

TRAM & Overlay O.K.
TS 6-10-69

4	3	2	1

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED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+Z 81.00 (REF)
+Y 27.00 (REF)
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
SEE NOTE 2
CHEM MILL LINE
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.018 (REF)
.018 (REF)
.031 (REF)
SEE NOTE 2
SEE NOTE 2
2
1
.018
REF
.040
REF
.018
REF
CHEM MILL LINE
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
CHEM MILL LINE
SEE NOTE 2
1
SEE NOTE 2
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.031 (REF)
ILL LINE
.018 (REF)
.040 (REF)
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-13 (REF)
.040 (REF)
.018 (REF)
CHEM MILL LINE
1
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
-13 (REF)
.031 (REF)
2
PHOTO BUTT LINE
.018 (REF)
CHEM MILL LINE
5
1
SEE NOTE 2
SEE NOTE 2
CHEM MILL LINE
CHEM MILL LINE
2 (REF)
TEMPLATE
BUTT LINE
10 TO
PHOTO BUTT LINE
ON SH 3

75
30
56

H

G

F

E

LDW280-18722

LDW280-18722

02/02 NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG IN STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED		CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
DIMENSIONS IN INCHES		DRAWN BY	
LINEAR TOL .XX	± .03	LAYOUT BY	
LINEAR TOL .XXX	± .010	CHECKED BY	
ANGULAR TOL	± 0°30'	GR LEADER	
TOL ON LOFTED DELINEATIONS IS		REL GROUP	
		PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18722
		GOVT APPD	SCALE FULL · SHEET 4.00

FOR PHOTO REPRODUCTION

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

	REV	SHEET
280-18722		4

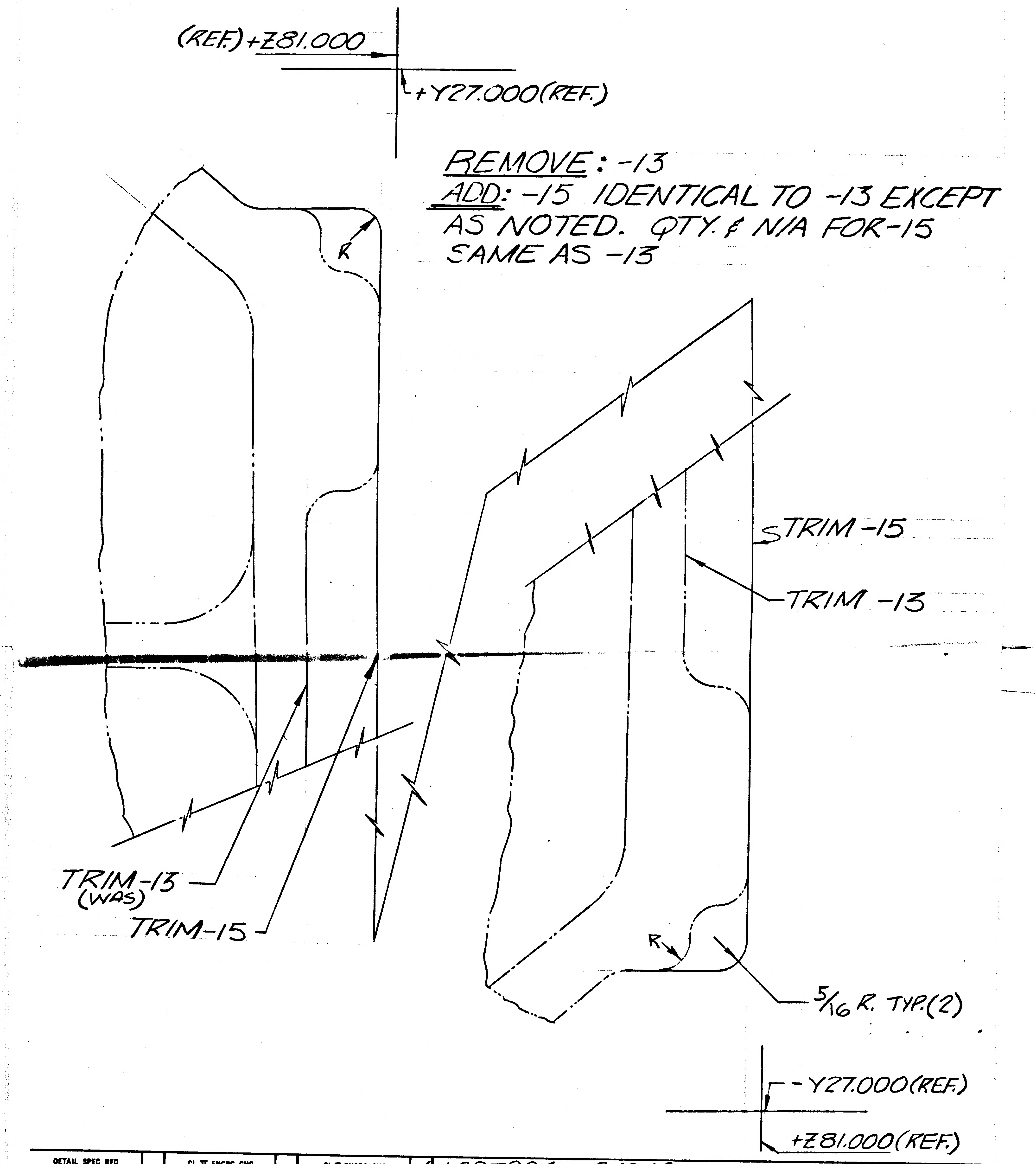
1 ← FRAME FRAME → 2

4	3	2	1

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18722 | EO NO. A1
CONTROL INFO NO. LDW280B8347



REMOVE: -13
ADD: -15 IDENTICAL TO -13 EXCEPT AS NOTED. QTY. & N/A FOR -15 SAME AS -13

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PKG. 69

REASON FOR EO: DESIGN VEHICLE FOR 37,000 LB. GROSS WT. ~ CDR LMMP RFA 2.11-1A

DESCRIPTION OF EO: REMOVED: -13
ADDED: -15

GAEC EO RELEASE

MODEL	~~PROCURING AGREEMENT NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		
	LTA-11(23), LTA-3DR/1(460)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK — SCRAP -13
PRIORITY: C

APPROVED BY								
DATE	9/17/69			9/17/69	9/17/69			
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

DRAWING TITLE: WEB ~ DESCENT STAGE FOWARD UPPER DECK
DRAWING NO. LDW280-18722
EO NO. A1

ISSUED BY CM GREEN / G HANSMANN X86047 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

01

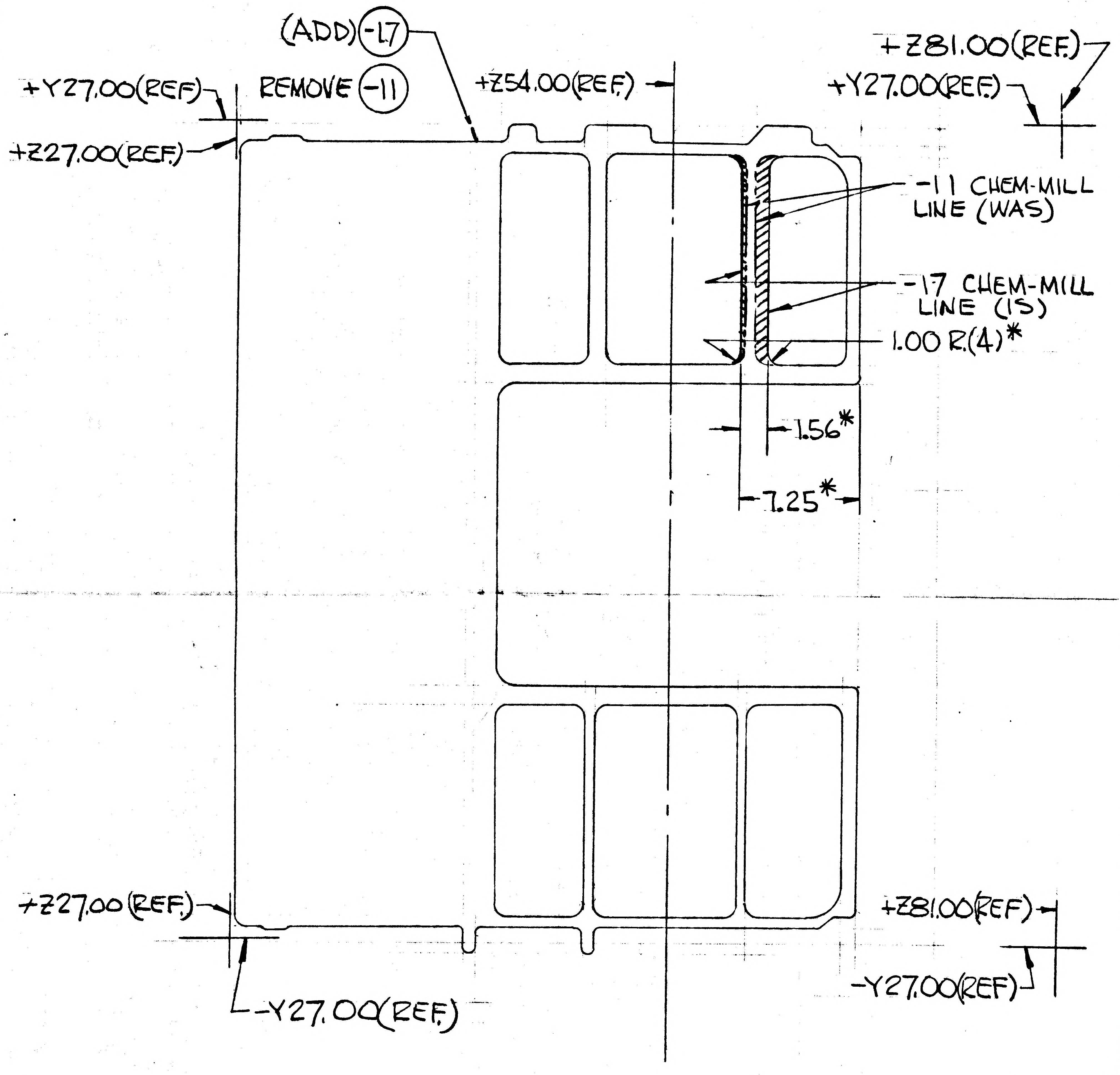
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18722	EO NO. A2
CONTROL INFO NO. LDW280B 9217	

CREATE -17, IDENTICAL TO -11 EXCEPT AS NOTED, QTY. & N/A TO REMAIN THE SAME. EFF. LM-10(40) THRU LM14(44), LTA-11(23) & LTA-3DR/1 (460).
SCRAP -11


(ADD) -17
REMOVE -11
+Y27.00(REF.)
+Z27.00(REF.)
+Z54.00(REF.)
+Z81.00(REF.)
+Y27.00(REF.)
-11 CHEM-MILL LINE (WAS)
-17 CHEM-MILL LINE (IS)
1.00 R.(4)*
1.56*
7.25*
+Z27.00(REF.)
-Y27.00(REF.)
+Z81.00(REF.)
-Y27.00(REF.)

* DIMS FOR ENG. REF. ONLY.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 52	(5)

REASON FOR EO: TO PROVIDE LAND FOR MESA/GOX TANK SPRT FITTING

DESCRIPTION OF EO: ADDED -17 REMOVED -11

GAEC EO RELEASE: 10/25; JK 10/27/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) T	HRU
		LM-14(44), L	TA-11(23) &
		LTA-3DR/1	(460)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓			-11		VDI 10/25/69			10-25-69	10/25/69		10/28/69	11-25-69

PRIORITY: C
DRAWING TITLE: WEB ~ D/S, FOWARD UPPER DECK
DRAWING NO.: LDW280-18722
EO NO.: A2

ISSUED BY J. TAVARES/P. THORJUSEN x86046 SECTION VD I GROUP NO. 335 PL 25
CDR 10 27 69

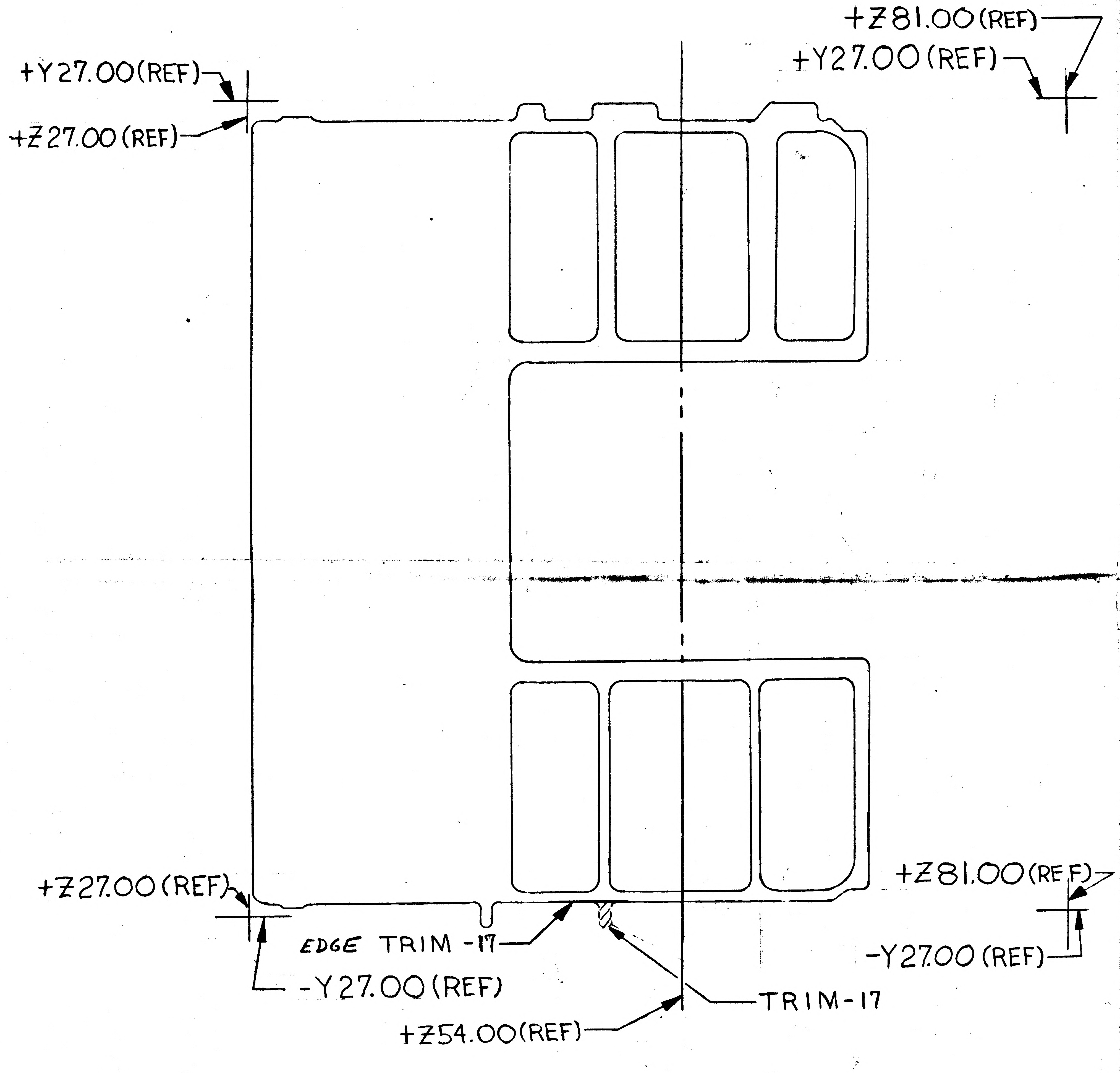
01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18722 EO NO. A3
CONTROL INFO NO. LM2-5852

TRIM -17 AS SHOWN IN SHADED AREA!


+Y27.00(REF)
+Z27.00(REF)
+Z81.00(REF)
+Y27.00(REF)
+Z27.00(REF)
EDGE TRIM -17
-Y27.00(REF)
+Z54.00(REF)
TRIM-17
+Z81.00(REF)
-Y27.00(REF)

REWORK INFORM.
BRUSH ALODINE BARE SURFACES PER LSP 14-9010

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 69	(2)

REASON FOR EO: TAB REMOVED DUE TO INTERFERENCE WITH PLUME DEFLECTOR FITTING.

DESCRIPTION OF EO: TRIMMED -17

GAEC EO RELEASE: R SM28 1-28-70 2/4/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU LM-14(44)	LTA11(23)
		LTA3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		(-17)	

APPROVED BY					KC		
DATE	1-19-70			1/9/70	1/8/70	1-8-70	1/27/70	1/9/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: WEB ~ DESCENT STAGE FORWARD UPPER DECK
DRAWING NO.: LDW280-18722
EO NO.: A3

ISSUED BY LIAISON DON RAGAS / J. MALONEY 3604 SECTION VDI GROUP NO. 335 PL 2

LDW280-18723

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11 (23)	1
		LTA-3DR/1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60523	LM-10 (40)	1

PART NO. LDW280-18723-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		200	300	400				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. 207
VC(001) ME-16 8/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3890 PKG 53

ECP A120

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY E. GREINER T. MACAULAY
LAYOUT BY W. LEIFER 7-31-69
CHECKED BY 7-22-69
GP LEADER G.W. 7-29-69
VEH DES INT 7-31-69
STRUCT
STRUCT NM 8-2-69
PROJ ENGR 8/2/69
REL GROUP March 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ AFT
UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18723
SCALE NONE
SHEET 1.00 OF 4

CDR 8-15-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18723-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X57X57	SEE NOTE 3		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18723

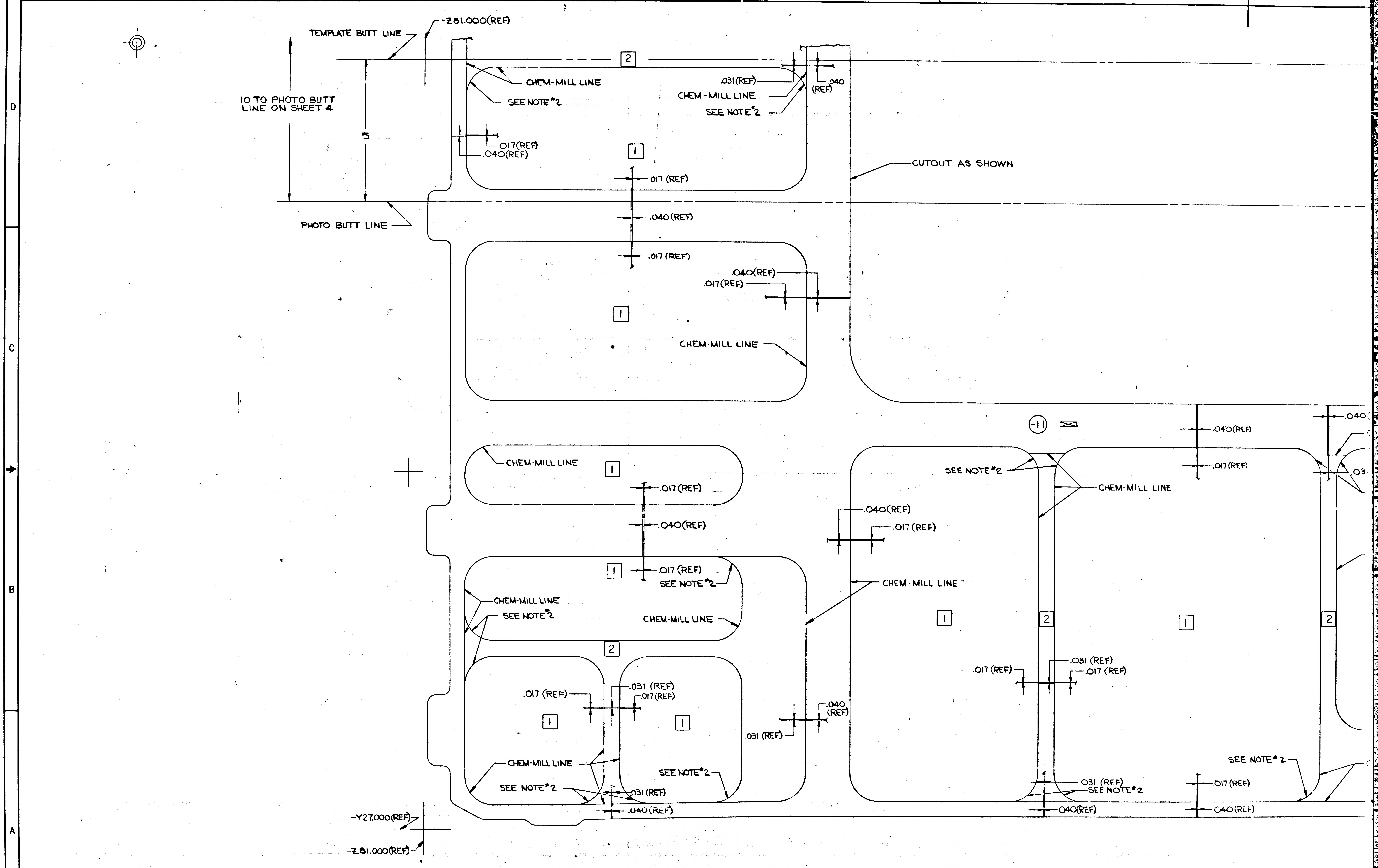
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
TEMPLATE BUTT LINE
-Z81.000(REF)
10 TO PHOTO BUTT LINE ON SHEET 4
5
2
CHEM-MILL LINE
SEE NOTE #2
.031(REF)
.040 (REF)
CHEM-MILL LINE
SEE NOTE #2
.017(REF)
.040(REF)
1
.017 (REF)
CUTOUT AS SHOWN
PHOTO BUTT LINE
.040 (REF)
.017 (REF)
.040(REF)
.017(REF)
1
CHEM-MILL LINE
-11
.040(REF)
.040
.017(REF)
.03
CHEM-MILL LINE
1
.017(REF)
SEE NOTE #2
CHEM-MILL LINE
.040(REF)
.040(REF)
.017 (REF)
1
.017 (REF)
SEE NOTE #2
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE #2
CHEM-MILL LINE
1
2
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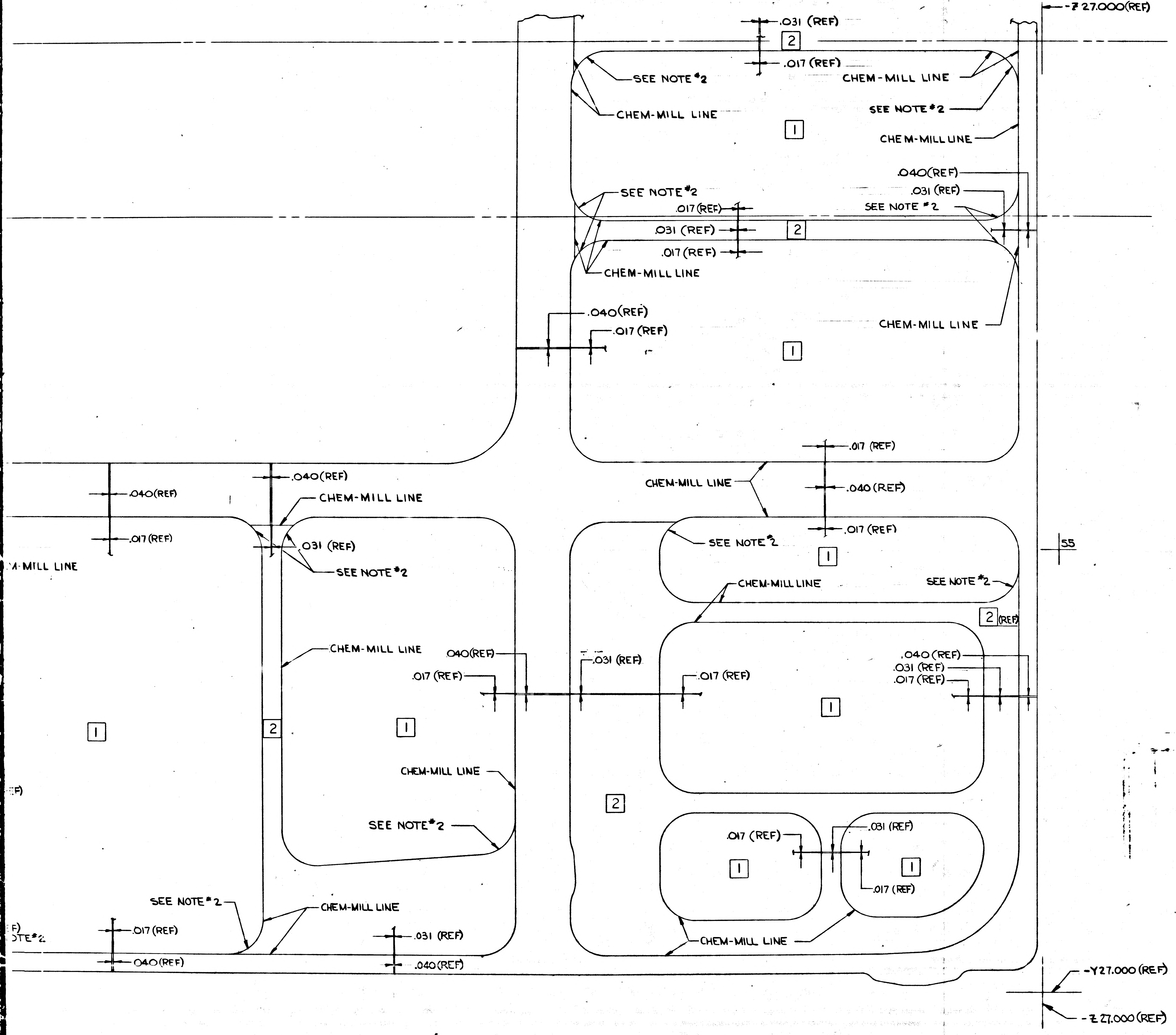
2
.031 (REF)
.017 (REF)
.017 (REF)
.017 (REF)
.031 (REF)
.017 (REF)
1
1
.040 (REF)
.031 (REF)
CHEM-MILL LINE
SEE NOTE #2
SEE NOTE #2
.031 (REF)
.040 (REF)
SEE NOTE #2
.031 (REF)
SEE NOTE #2
.017(REF)
.040(REF)
.040(REF)
-Y27.000(REF)
-Z81.000(REF)

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18723		3

FRAME 1 FRAME 2



-Z 27.000 (REF)
.031 (REF)
2
.017 (REF)
SEE NOTE *2
CHEM-MILL LINE
SEE NOTE *2
CHEM-MILL LINE
1
CHEM-MILL LINE
.040(REF)
.031 (REF)
SEE NOTE *2
SEE NOTE *2
.017 (REF)
.031 (REF)
2
.017 (REF)
CHEM-MILL LINE
CHEM-MILL LINE
.040(REF)
.017 (REF)
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.017 (REF)
.040(REF)
CHEM-MILL LINE
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.040(REF)
CHEM-MILL LINE
.017 (REF)
.017(REF)
-MILL LINE
.031 (REF)
SEE NOTE *2
SEE NOTE *2
1
55
CHEM-MILL LINE
SEE NOTE *2
2 (REF)
CHEM-MILL LINE
.040(REF)
.031 (REF)
.017 (REF)
.040 (REF)
.031 (REF)
.017 (REF)
.017 (REF)
1
1
2
1
CHEM-MILL LINE
2
SEE NOTE *2
.017 (REF)
.031 (REF)
1
1
.017 (REF)
SEE NOTE *2
CHEM-MILL LINE
.017 (REF)
.031 (REF)
.040(REF)
.040(REF)
CHEM-MILL LINE
-Y27.000 (REF)
-Z 27.000 (REF)

70

30

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

DWG 771.2 4-6

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

D

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TOLERANCE ±.125 AT TANGENCY POINTS OF CHEM-MILL LINE CORNER RADII BETWEEN TWO ETCHED SURFACES.
3. FABRICATE PER LPC 280-43.

C

LDW280-18723

B

LDW280-18723-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.017 ±.002	.023 (REF)
2	.031 ±.002	.009 (REF)

LDW280-18723

02/02

NAS 9-1100

A

~~FOR PARTS LIST, USAGE DATA, AND DWG ON STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL	.XX	± .03	DRAWN BY	
	.XXX	± .010	LAYOUT BY	
ANGULAR TOL		± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS			GR LEADER	
			REL GROUP	
			PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18723
			GOVT APPD	SCALE FULL · SHEET 3 OF

K2

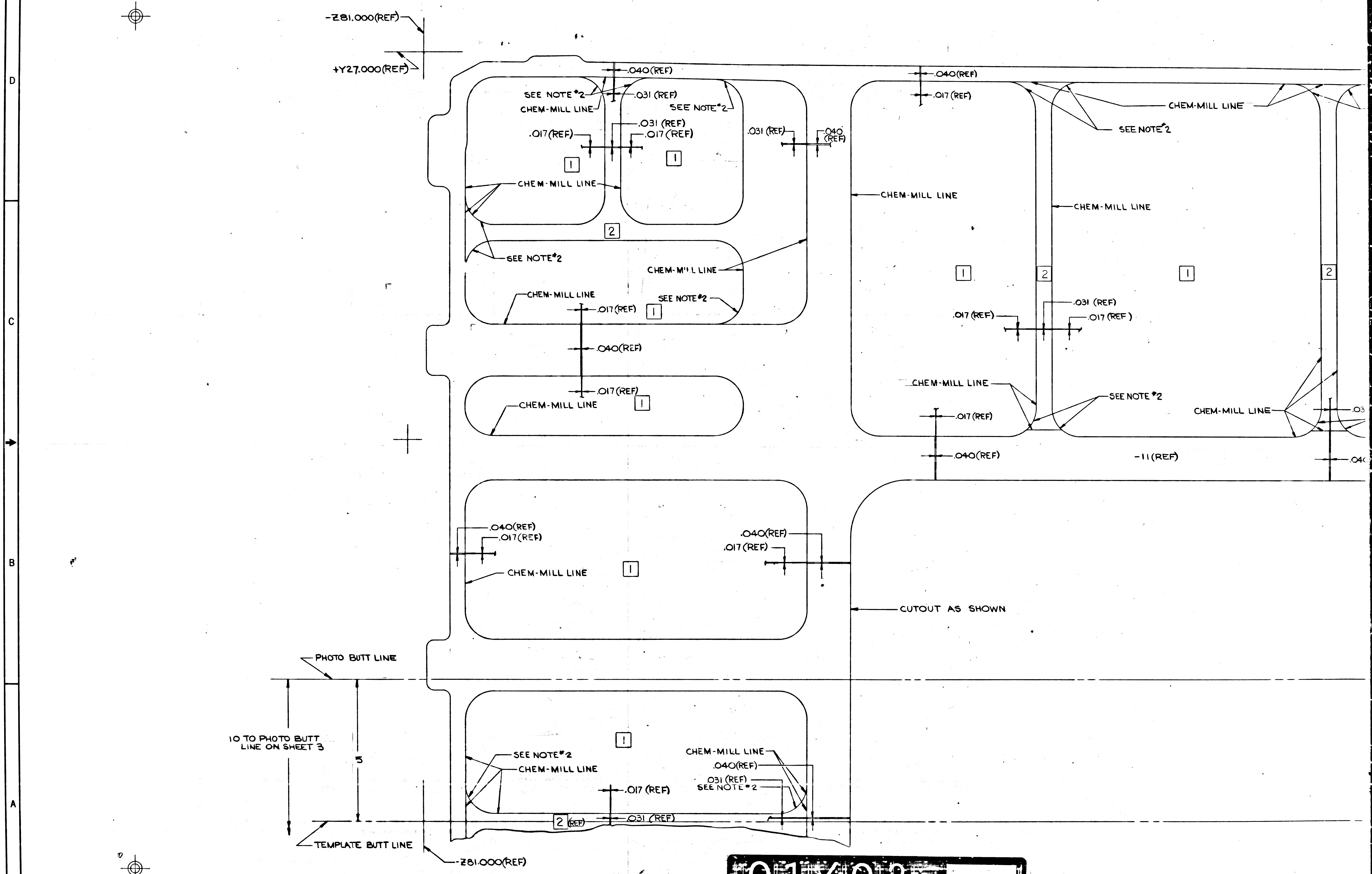
1 FOR PHOTO REPRODUCTION 2FR

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 6.5 SQ FT

DISTR. LIST #

LDW280-18723	REV	SHEET 3

FRAME 1 FRAME 2


-Z81.000(REF)
+Y27.000(REF)
.040(REF)
.031 (REF)
.031 (REF)
.017 (REF)
.017(REF)
SEE NOTE*2
CHEM-MILL LINE
SEE NOTE*2
.031 (REF)
.040 (REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
SEE NOTE*2
1
1
CHEM-MILL LINE
2
SEE NOTE*2
CHEM-MILL LINE
CHEM-MILL LINE
SEE NOTE*2
.017(REF)
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.040(REF)
.017(REF)
CHEM-MILL LINE
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CHEM-MILL LINE
CHEM-MILL LINE
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.031 (REF)
.017(REF)
.017 (REF)
CHEM-MILL LINE
SEE NOTE*2
CHEM-MILL LINE
.017(REF)
.040(REF)
-11(REF)
.040(REF)
.017(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
1
CUTOUT AS SHOWN
PHOTO BUTT LINE
10 TO PHOTO BUTT LINE ON SHEET 3
5
1
SEE NOTE*2
CHEM-MILL LINE
.017 (REF)
CHEM-MILL LINE
.040(REF)
.031 (REF)
SEE NOTE*2
2 (REF)
.031 (REF)
TEMPLATE BUTT LINE
-Z81.000(REF)

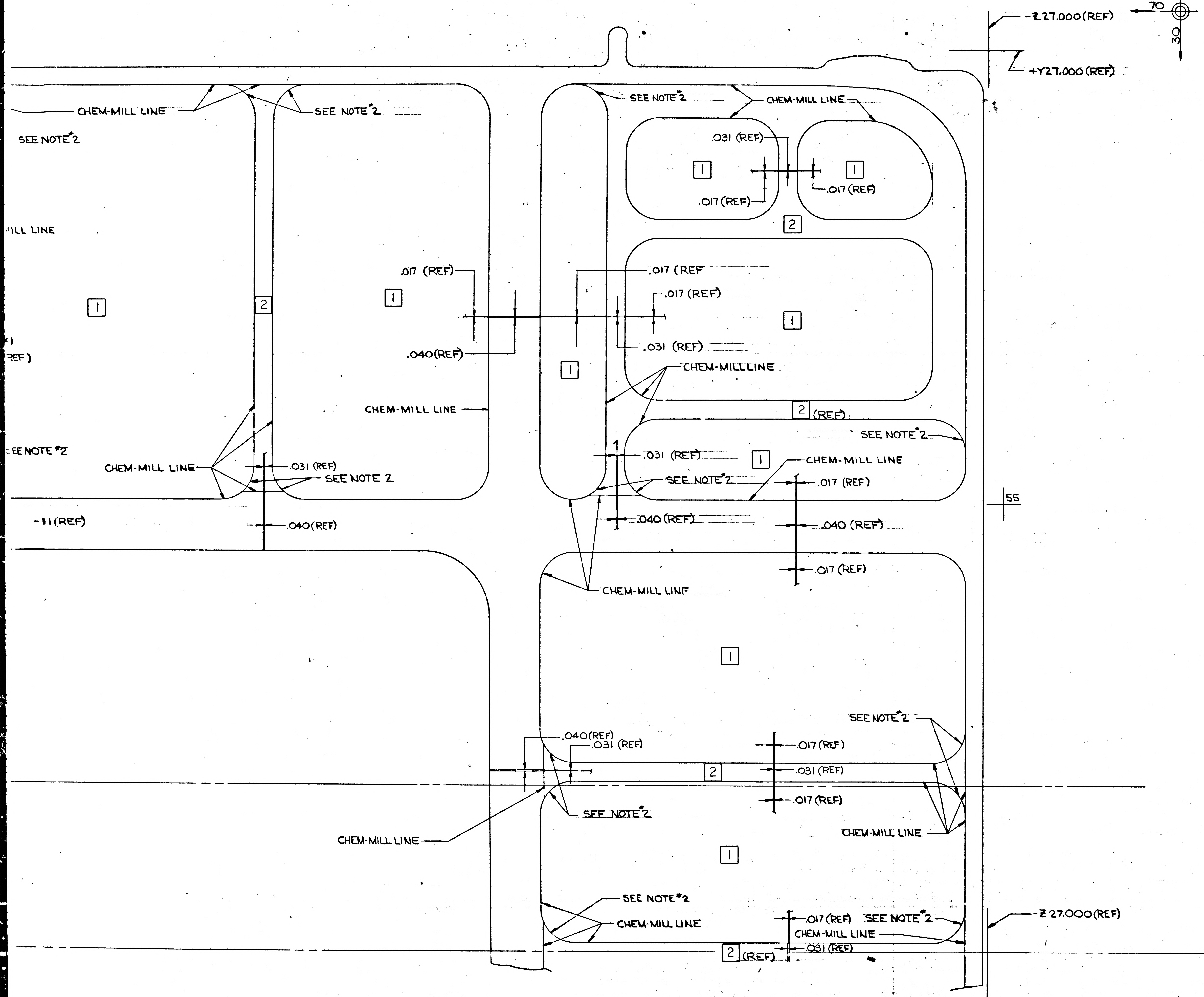
01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18723		4

FRAME 1 FRAME 2

overlay & TRANS OK RLC 6/14/09

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED



-Z27.000(REF)
+Y27.000(REF)
70
30
CHEM-MILL LINE
SEE NOTE 2
SEE NOTE 2
SEE NOTE 2
CHEM-MILL LINE
.031 (REF)
.017 (REF)
.017 (REF)
1
1
2
ILL LINE
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2
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.017 (REF)
.017 (REF
.017 (REF)
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.040(REF)
.031 (REF)
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CHEM-MILL LINE
CHEM-MILL LINE
2 (REF)
SEE NOTE 2
EF)
EE NOTE 2
CHEM-MILL LINE
.031 (REF)
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.031 (REF)
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CHEM-MILL LINE
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.017 (REF)
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-11 (REF)
.040 (REF)
.040 (REF)
.040 (REF)
.017 (REF)
CHEM-MILL LINE
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SEE NOTE 2
.040(REF)
.031 (REF)
.017 (REF)
2
.031 (REF)
.017 (REF)
SEE NOTE 2
CHEM-MILL LINE
CHEM-MILL LINE
1
SEE NOTE 2
CHEM-MILL LINE
.017 (REF)
SEE NOTE 2
CHEM-MILL LINE
-Z 27.000(REF)
.031 (REF)
2 (REF)

02/02 NAS 9-1100

FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.

UNLESS OTHERWISE SPECIFIED			CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
DIMENSIONS IN INCHES				
LINEAR TOL	.XX	± .03	DRAWN BY	
	.XXX	± .010	LAYOUT BY	
ANGULAR TOL		± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS			GR LEADER	
			REL GROUP	
			PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18723
			GOVT APPD	SCALE FULL · SHEET 400 OF

K2

1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST #

DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT
PRINTING INFO ONLY

DWG NO	REV	SHEET
LDW280-18723		4

FRAME 1 | FRAME 2

LDW280-18723

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18723
EO NO. A1
CONTROL INFO NO. LDW280B8780

ADD -13 WEB IDENTICAL TO -11
EXCEPT AS NOTED.
FOR -13, SEE NOTE* (ADD)

NOTE* FABRICATE -13 PER LPC 280-43 EXCEPT THAT THE EMITTANCE REQUIREMENTS (i.e. PARA. 4.7) SHALL BE OMITTED.
FOR -13, N/A LDW280-60523
1 REQ'D / MODULE
EFF. : D.V.T. (70)
I&T (S)

NOTE * (USE NEXT AVAILABLE NOTE NO.)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 53 PG 3 (5)

REASON FOR EO: TEST DECK REQD PER LMMP-PDR RFA 6.0-15 ~ GAC ACTION ITEM.

DESCRIPTION OF EO: ADDED -13 & NOTE (*).

GAEC EO RELEASE: LR 9-12-69; JK 9/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: REWORK NOT / SCRAP REQD

APPROVED BY							
DATE	9-3-69			8/21/69	9/8/69		9/11/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: WEB DESCENT STAGE, TOP DECK - Z
DRAWING NO.: LDW280-18723
EO NO.: A1

9-10-69
ISSUED BY G. HANSMANN/W. LEIFER x87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO 1859	
CONTROL INFO NO. LM-5-22301			

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890											
REASON FOR EO			DESCRIPTION OF EO											Ⓚ GAEC EO RELEASE
QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-113-2			ON -*, QTY ■ REQ'D/VEHICLE WAS ▲											
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
				✓		NOT REQ'D		DATE	3-10-70			3/10/70	3/3/70	3-3-70
LM		DVT (70)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG
				PRIORITY	DRAWING TITLE							DRAWING NO.		EO NO.
				C	NOTED							LEO-280		1859

PROJ ENGRG 3/10/70; ~~CONT~~ 3/6/70

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18724

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60667	LM-14 (44)	1
↕	↕	LM-13 (43)	1
↕	↕	LM-12 (42)	1
↕	↕	LM-11 (41)	1
LM	LDW280-60667	LM-10 (40)	1
PART NO. LDW280-18724-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED ~
LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. PP601
207 ME-16 1-9-70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
XX=±.03, XXX=±.010 0°30′
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994, PKG 92

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY M.MARKARIAN THERMO
LAYOUT BY D.SHAPIRO 12/18/69 DS
CHECKED BY J.McCORMACK 12-19-69
GRP LEADER 1/5/70
VEH DES INT 1-6-70
STRUCTURES
STRUCTURES W.H. 1/6/70
THERMO
PROJ ENGR 1-8-70
REL GROUP 1-9-70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE ~ QUAD IV ~
MESA PALLET BLANKET STIFFENER

SIZE B
CODE IDENT NO. 26512
LDW280-18724
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 1-12-70

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18724-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075-T6	.040×2×23	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18724

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

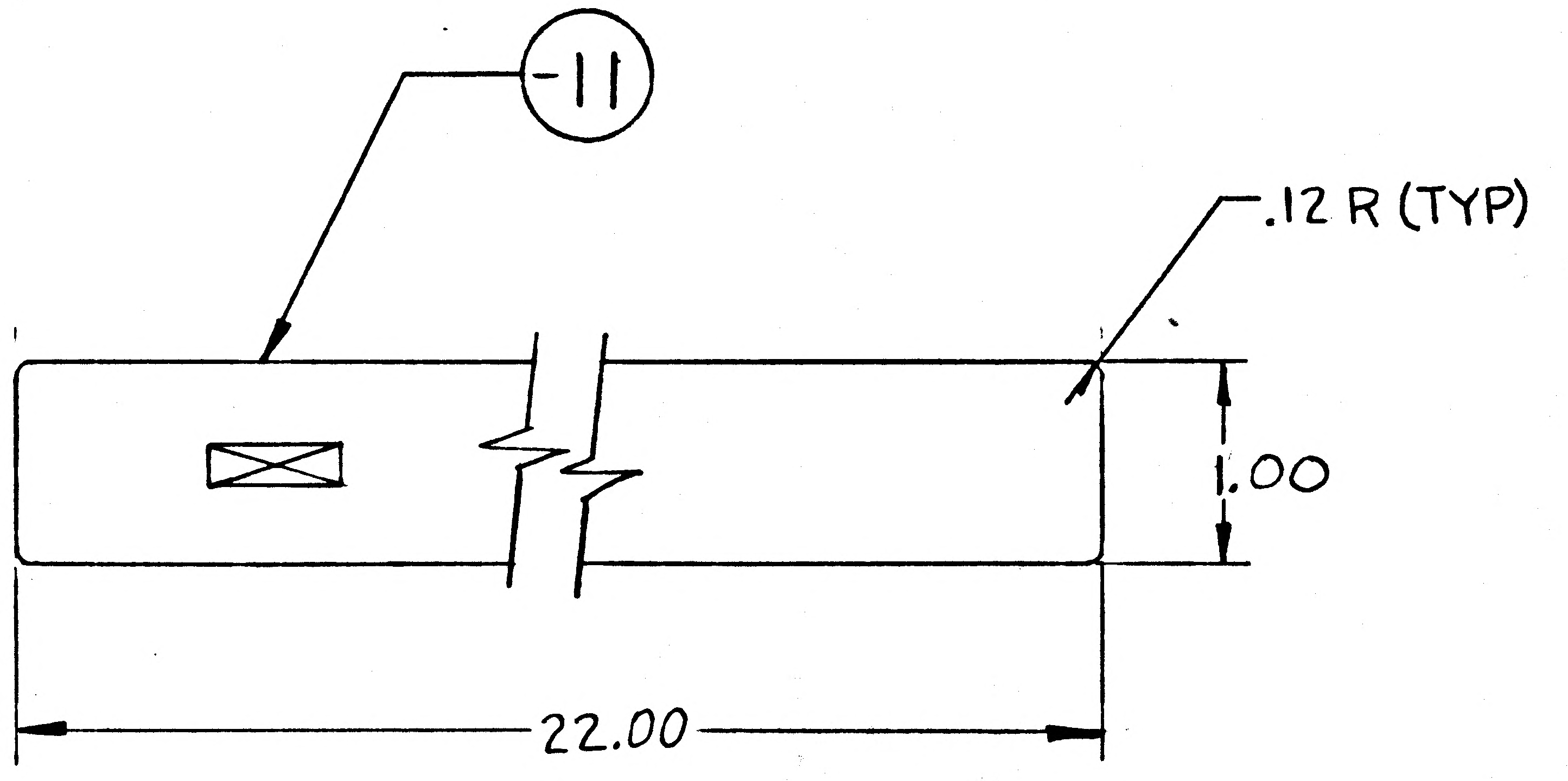
ENG 771.2 4-67

SUPPLEMENTARY DATA

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
BBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	√
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE :
1. NO TOOLING HOLES PERMITTED IN PART.



GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18724
SCALE NONE		SHEET 3.00

ENG 73.1 6-64

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18724		EO NO. A1	
CONTROL INFO NO. LDW280C0757			

IN F/D & B/M

DELETE -11 (1/MOD) LM-10(40) THRU LM-13(43)

ADD -13 (1 REQD/MOD)

-15 (1 REQD/MOD)

-17 (3 REQD/MOD)

EFF. LM-10 THRU LM-13(43), TM-11R(501)

N/A LDW 280-60667

EFF. TM-5(65)

N/A LTM 280-50714

-13, -15 & -17

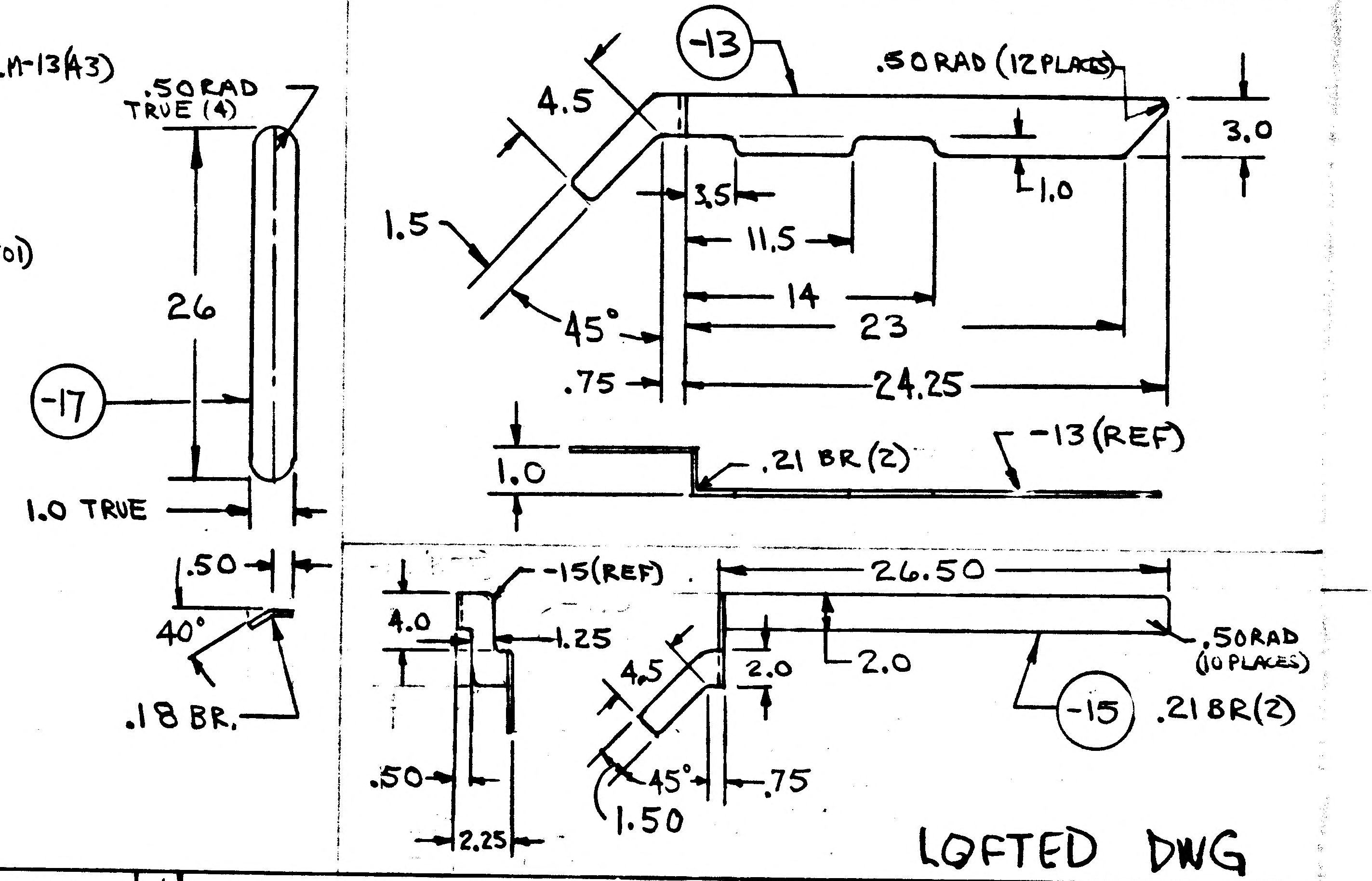
MAKE FROM AL ALLOY SH.

2024-T3, QQ-A-250/12

FINISH 88

-13 & -15 (.063 THICK)

-17 (.020 THICK)


.50 RAD TRUE (4)
26
-17
1.0 TRUE
.50
40°
.18 BR.
-13
.50 RAD (12 PLACES)
4.5
3.0
1.5
3.5
1.0
11.5
14
45°
23
.75
24.25
1.0
.21 BR (2)
-13 (REF)
-15 (REF)
26.50
4.0
1.25
2.0
2.0
4.5
.50 RAD (10 PLACES)
-15
.21 BR (2)
.50
45°
.75
1.50
2.25

LOFTED DWG

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5566 PKG 50

"MWC"

REASON FOR EO

MODIFICATION OF MESA CENTER BAY BLANKET (REF RFA 12)

LM-10 D/S DELTA CCSR

DESCRIPTION OF EO

IN F/D & B/M

DELETED -11

ADDED -13, -15, -17

GAEC EO RELEASE

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT~~ NO.
LM	LM-10 (40)	THRU LM-	13 (43)
LM	TM-11R (501)	TM-5 (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-11 ✓ SCRAP

APPROVED BY		JCG			WH			
DATE	7-28-70	7/16/70		7/16/70	7/16/70		7/28/70	7/28/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S MESA PALLET	LDW280-18724	A1

CDR 071070

ISSUED BY VINCENT CHRISTINA X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

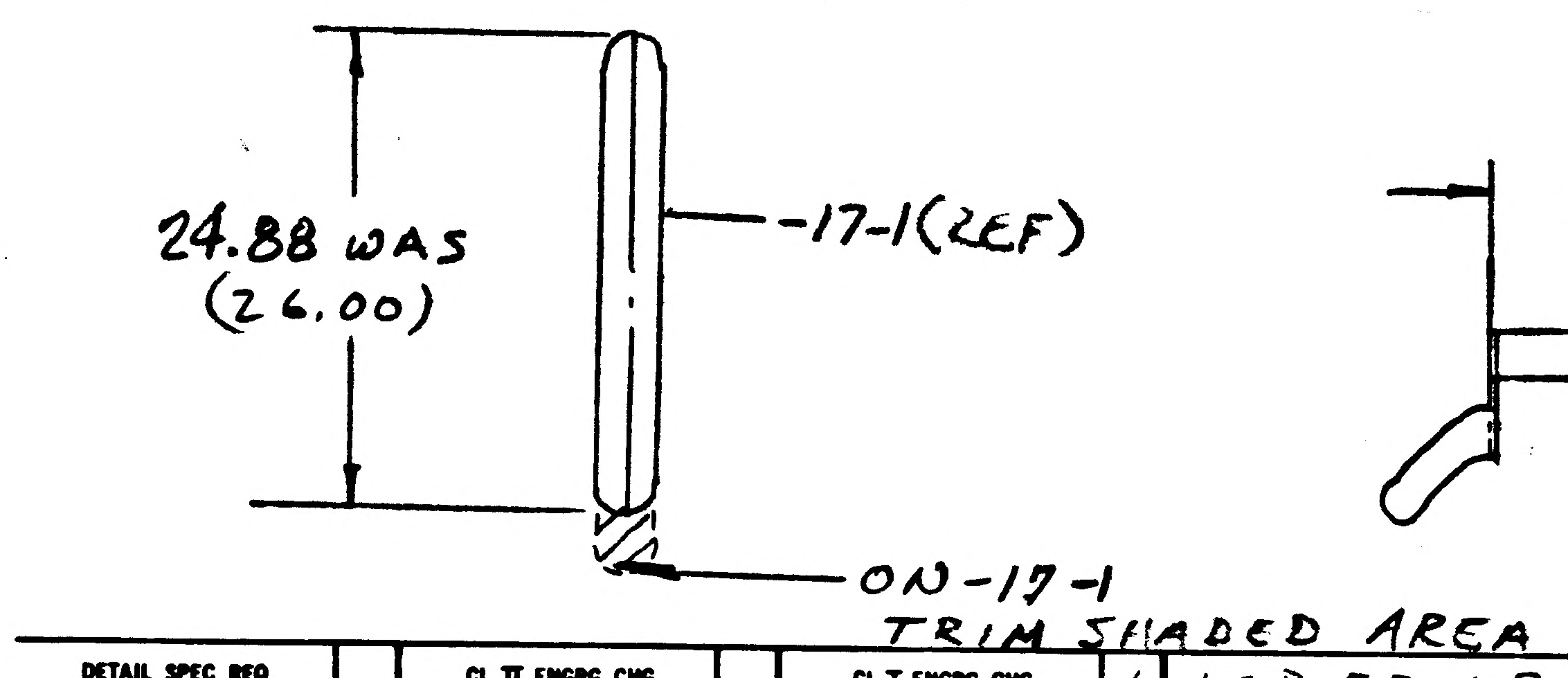
ENG 32.1 REV 3-65

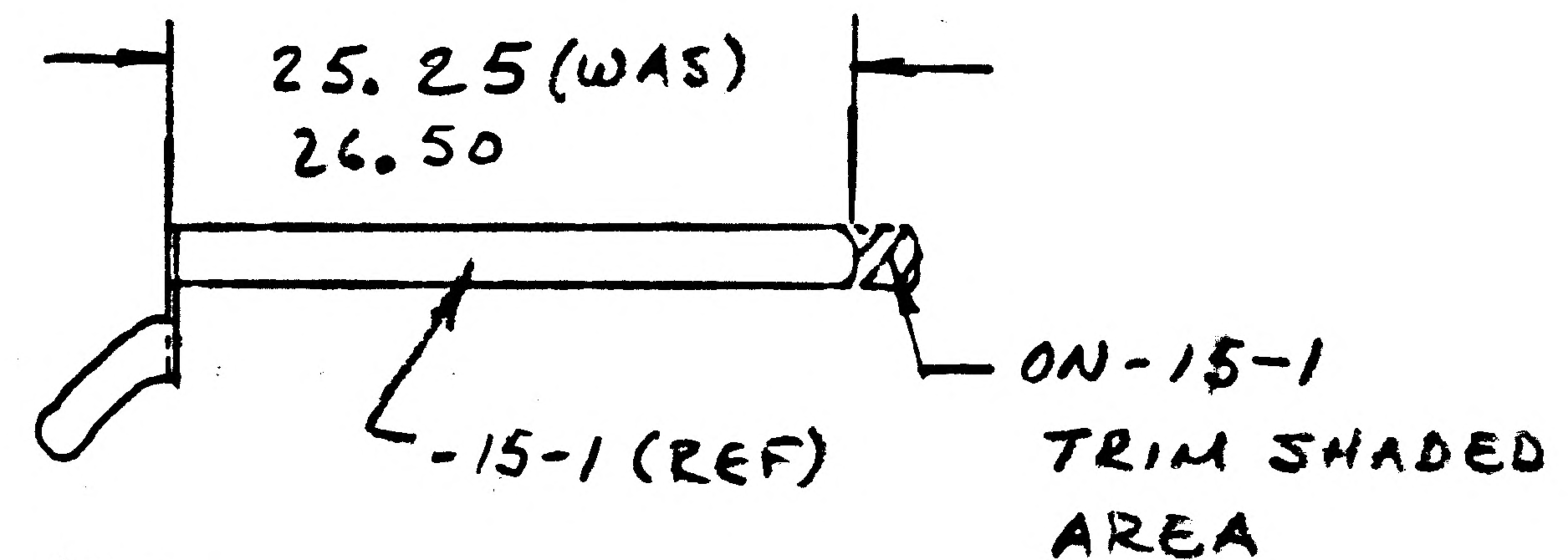
DWG. NO. LDW280 -18724		EO NO. A2	
CONTROL INFO NO. LDW280C1359			

IN F/D & B/M

CREATE -17-1 (-17-1 IS IDENT TO -17 EXCEPT AS SHOWN)
CREATE -15-1 (-15-1 IS IDENT TO -15 EXCEPT AS SHOWN)
N/A LDW280-60667 LM10 (40) THRU 12 (42) } 3 REQD/MOD -17-1
LTM280-50714 TM-5 (65) } 1 REQD/MOD -15-1

FOR -15 & -17 REMOVE LM-10 THRU LM-12, TM-5 REQMTS.





DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 5566B PK 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ALLOW CENTER MESA BLANKET TO CLOSE PROPERLY.	ADDED -17-1 & -15-1 FOR -15 & -17 REMOVED LM10 THRU 12, TM5, REQMTS.	

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 667	LM10 (40)	
		LM11 (41) LM12 (42)	
		TM5 (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		JCS			NW			Bolte
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	DATE	3/19	3-11-71		3/19/71	3/19/71		3/19/71	3-19-71
					VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S - MESA PALLAT	LDW280-18724	A2

CDR-03-19-71
ISSUED BY DON RAGAS X87222 SECTION VDI GROUP NO. 0335 PL 025

0 1

NAS 9-1100

LDW280 - 18725

PART NO. LDW 280-18725-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	10
↕	↕	LM-13(43)	10
↕	↕	LM-12(42)	10
↕	↕	LM-11(41)	10
LM	LDW280-60511	LM-10(40)	10

PART NO. LDW280-18725-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	5
↕	↕	LM-13(43)	5
↕	↕	LM-12(42)	5
↕	↕	LM-11(41)	5
LM	LDW280-60511	LM-10(40)	5

PART NO. LDW280-18725-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	8
↕	↕	LM-13(43)	8
↕	↕	LM-12(42)	8
↕	↕	LM-11(41)	8
LM	LDW280-60511	LM-10(40)	8

PART NO. LDW280-18725-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	4
↕	↕	LM-13(43)	4
↕	↕	LM-12(42)	4
↕	↕	LM-11(41)	4
LM	LDW280-60511	LM-10(40)	4

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO		
		PRIM NO.	JK(001)	
LAST DASH NO. USED	-17	207	ME-16-	2/5/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ DECIMALS — ANGLES
XX=±.03 XXX=±.010 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCR 3994 PKG 92	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 1/13/70	THERMO	M.W. 2/4/70
LAYOUT BY	G. CHAN G.C.		
CHECKED BY	L. ATLAS 1-22-70		
GP LEADER	1/27/70		
VEH DES INT	Thorjussen 1-27-70		
STRUCTURES	N.M. 1-27-70	PROJ ENGR	Thorjussen 2-5-70
STRUCTURES	W.H. 1/27/70	REL GROUP	2/5/70
THERMO	M. Cuhan 2/4/70		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE-LOWER DECK-THERMAL SHIELD ~ CATENARY SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18725

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2-20-70

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18725-17	E	STRAP	GM3103	MIL-T-9046 TYPE III COMP C, ANL	6AL-4V	.020X.83X 28.38	NONE	NONE	
								-15	E	↕	↕	↕	↕	.020X.83X 26.70	↕	↕	
								-13	E	↕	↕	↕	↕	.020X.83X 15.58	↕	↕	
								LDW280-18725-11	E	STRAP	GM 3103	MIL-T-9046 TYPE III COMP C, ANL.	6AL-4V	.020X.83X 19.70	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18725

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

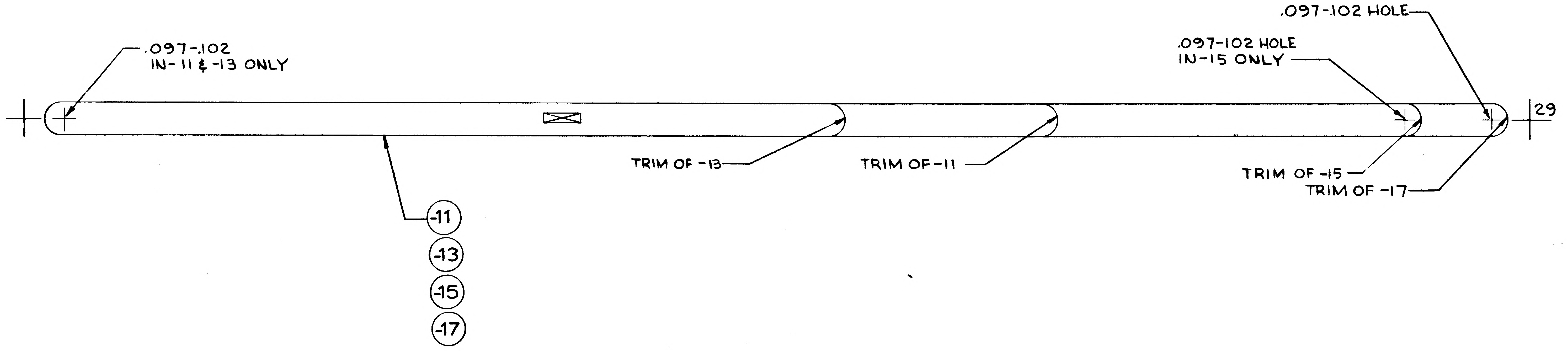
0 1

NAS 9-1100

LDW280-18725

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS



.097-.102
IN-11 & -13 ONLY
.097-.102 HOLE
.097-.102 HOLE
IN-15 ONLY
29
TRIM OF -13
TRIM OF -11
TRIM OF -15
TRIM OF -17
-11
-13
-15
-17

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18725	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

LDW280-18725

NAS 9-1100

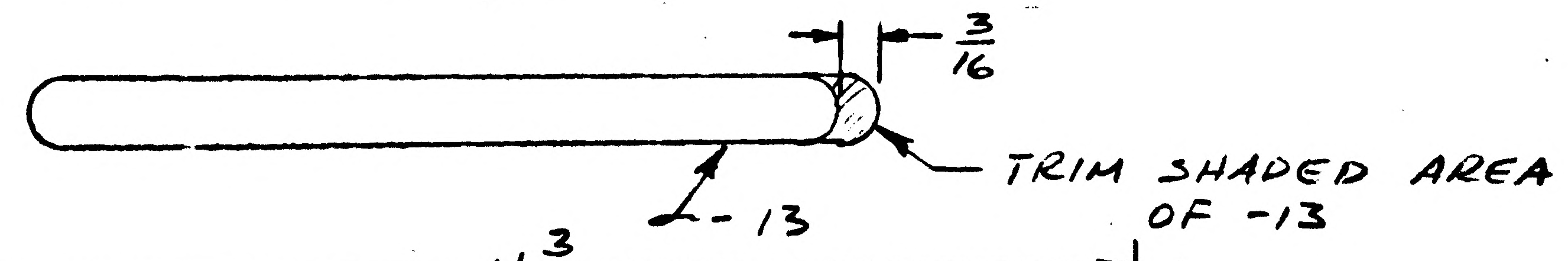
01
NAS 9-1100

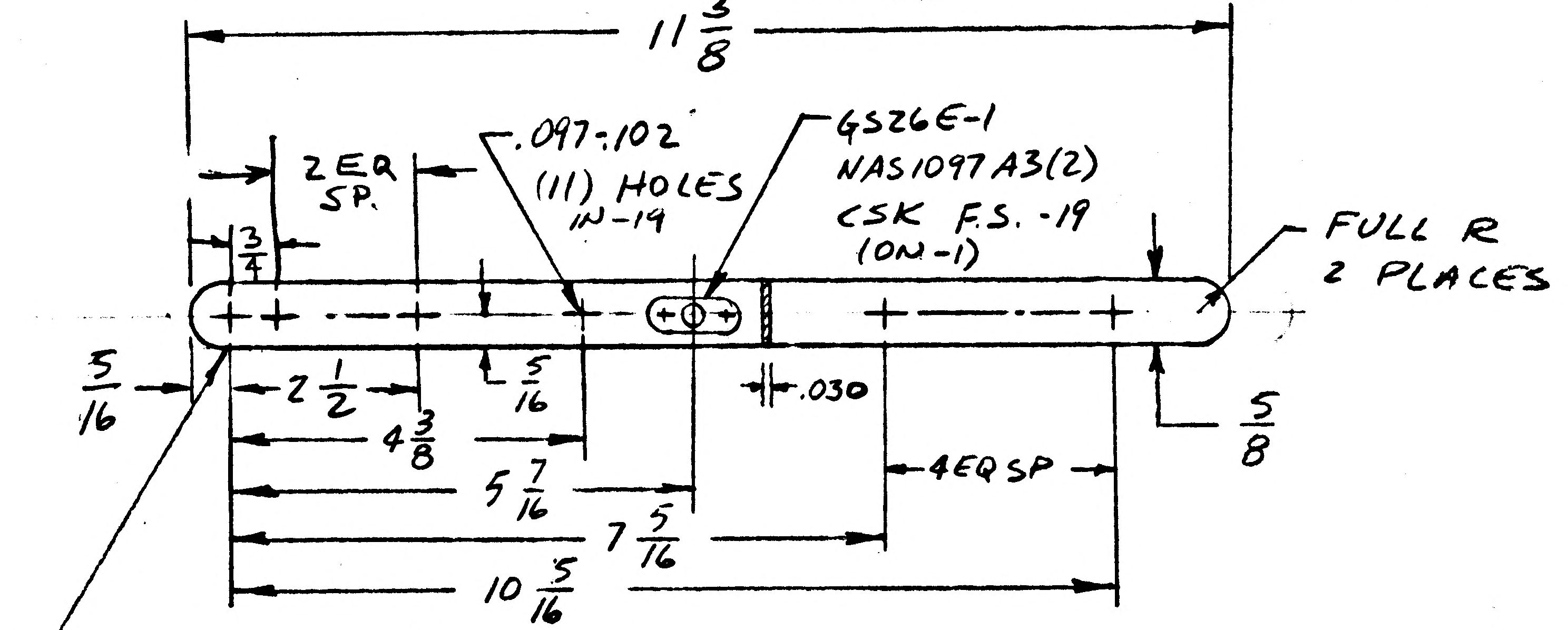
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

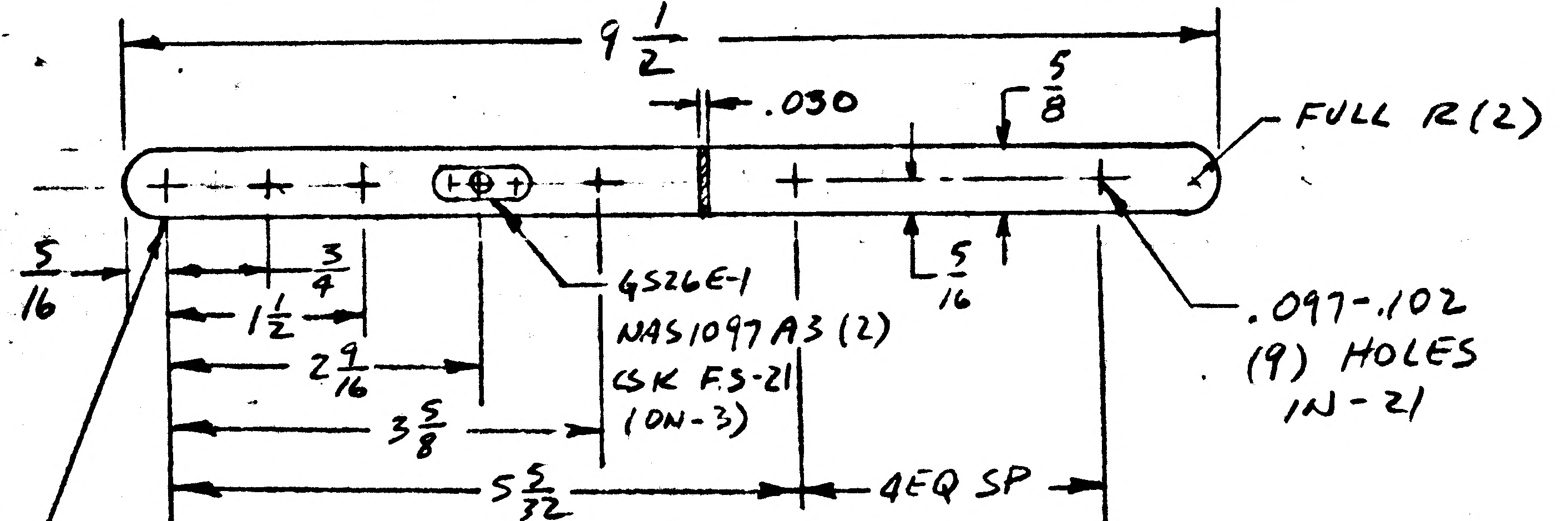
DWG. NO. LDW280-18725	EO NO. A1
CONTROL INFO NO. LDW280C0692	

REWORK -13 & ADD -1,-3,-5,-19-21 & -23 AS NOTED BELOW:
IN MODEL BLK FOR -17, (10) REQD S/B (6) REQD

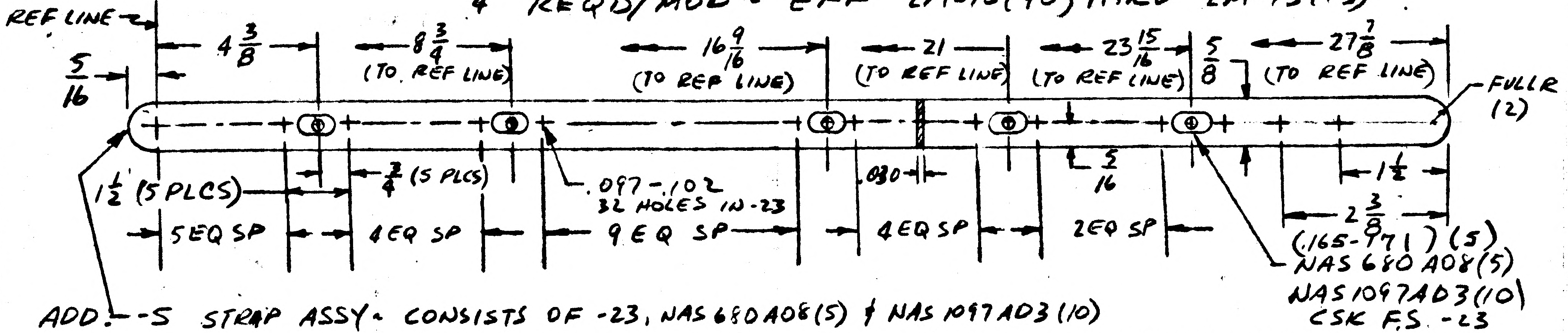

3/16
TRIM SHADED AREA OF -13
-13


11 3/8
2 EQ SP.
.097-.102
(11) HOLES IN -19
GS26E-1
NAS1097A3(2)
CSK F.S. -19
(ON -1)
FULL R 2 PLACES
3/4
5/16
2 1/2
4 3/8
5/16
.030
5 7/16
7 5/16
10 5/16
4 EQ SP
5/8

ADD: -1 STRAP ASSY - CONSISTS OF -19, GS26E-1 & NAS 1097 A3(2)
N/A LDW 280-60511 ~ 4 REQD/MOD ~ EFF LM-10(40) THRU LM-13(43)
-19 STRAP ~ MATL: SAME AS -11 ~ N/A LDW280-60511 ~
4 REQD/MOD ~ EFF. LM 10(40) THRU LM-13(43)


9 1/2
.030
5/8
FULL R(2)
5/16
3/4
1 1/2
2 9/16
3 5/8
GS26E-1
NAS1097A3 (2)
CSK F.S-21
(ON-3)
5/16
.097-.102
(9) HOLES IN-21
5 5/32
4 EQ SP
8 1/16

ADD: -3 STRAP ASSY ~ CONSISTS OF -21, GS26E-1 & NAS 1097 A3 (2)
N/A LDW 280-60511 ~ 4 REQD/MOD ~ EFF LM-10(40) THRU LM-13(43)
-21 STRAP ~ MATL: SAME AS -11 ~ N/A LDW280-60511
4 REQD/MOD ~ EFF LM-10(40) THRU LM-13(43).


REF LINE
5/16
4 3/8
8 3/4 (TO REF LINE)
16 9/16 (TO REF LINE)
21 (TO REF LINE)
23 15/16 (TO REF LINE)
5/8
27 7/8 (TO REF LINE)
FULL R (2)
1 1/2 (5 PLCS)
3/4 (5 PLCS)
.097-.102
32 HOLES IN -23
.030
5/16
1 1/2
2 3/8
5 EQ SP
4 EQ SP
9 EQ SP
4 EQ SP
2 EQ SP
(165-971) (5)
NAS 680 A08(5)
NAS1097AD3(10)
CSK F.S. -23

ADD: -5 STRAP ASSY ~ CONSISTS OF -23, NAS 680 A08(5) & NAS 1097 AD3 (10)
-23 STRAP ~ MATL: SAME AS -11. FOR -5 & -23: N/A LDW 280-60511 ~ (ON -5)
4 EA REQD/MOD ~ EFF LM-10(40) THRU LM-13(43).

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 92

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITION OF NEW STRAPS REQD DUE TO REDESIGN OF DOORS MWC	REVISED TRIM OF -13. ADDED -1,-3,-5,-19,-21 & -23 (4 EA REQD). IN MODEL BLK FOR -17, 6 REQD WAS 10 REQD.	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓

APPROVED BY					NM			
DATE	6-22-70	6/22/70		6/19/70	6/22/70		6/22/70	6/22/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP ~ D/S ~ LWR DECK ~ THERMAL SHIELD ~ CATENARY SUPT	LDW280-18725	A1

CDR 0501.70
ISSUED BY S. TAMRES/G. HANSMANN SECTION VDI 87222 GROUP NO. 335 PL 25

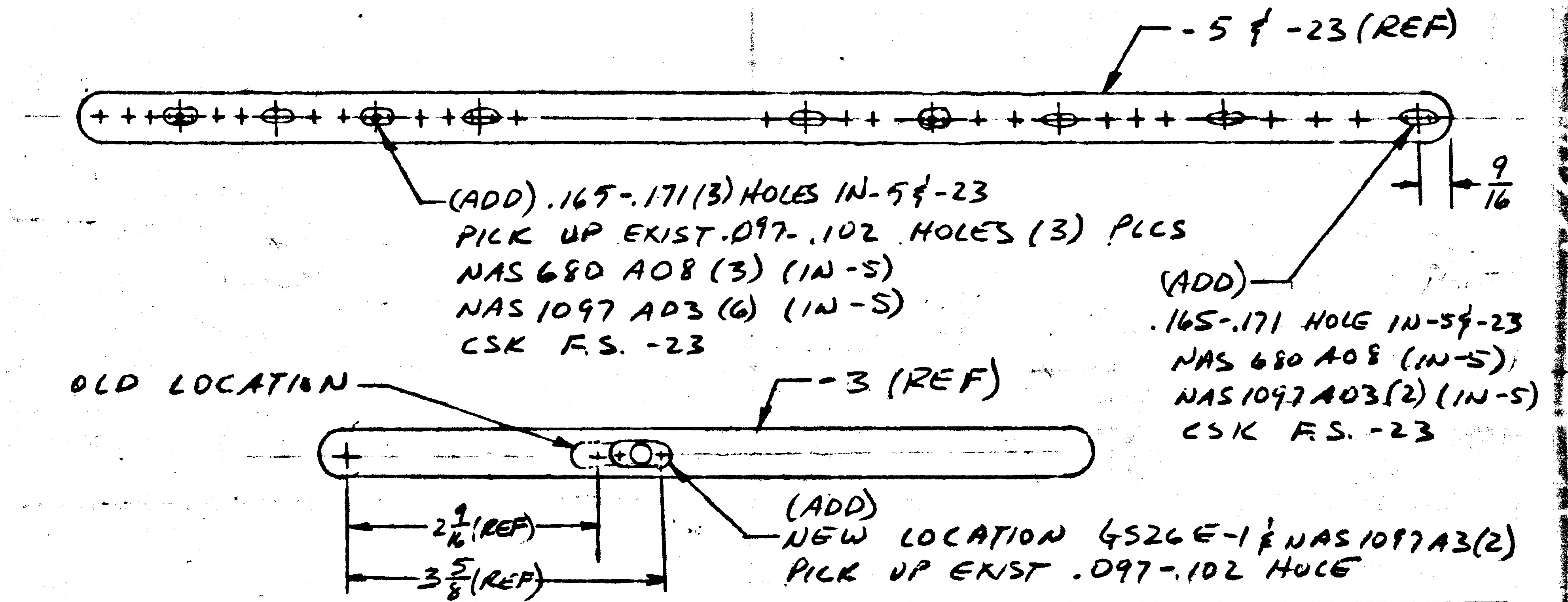
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18725 EO NO. A2
CONTROL NO. LDW280C0721

REWORK -3, -5 & -23 AS SHN BELOW:



(ADD) .165-.171 (3) HOLES IN -5 & -23
PICK UP EXIST .097-.102 HOLES (3) PLCS
NAS 680 A08 (3) (IN -5)
NAS 1097 AD3 (6) (IN -5)
CSK F.S. -23

(ADD)
.165-.171 HOLE IN -5 & -23
NAS 680 A08 (IN -5)
NAS 1097 AD3 (2) (IN -5)
CSK F.S. -23

(ADD)
NEW LOCATION GS26E-1 & NAS 1097 A3 (2)
PICK UP EXIST .097-.102 HOLE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 92

REASON FOR EO: ADDITIONAL FASTENERS REQD (FUT) MWC

DESCRIPTION OF EO: ON -5, ADDED NAS 680 A08 (4) & NAS 1097 AD3 (8). ON -5 & -23, ADDED .165-.171 (4) HOLES (WAS) .097-.102 (3) HOLES. ON -3, RELOCATED GS26E-1 & NAS 1097 A3 (2)

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	PST				WB		PST	
DATE	7-1-70	7/1/70		6-30-70	6/30/70		7-1-70	7/1/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY: C

DRAWING TITLE: STRAP ~ D/S ~ LWR DECK ~ THERMAL SHIELD ~ CATENARY SUPT

DRAWING NO. LDW280-18725 EO NO. A2

CDR 050170

ISSUED BY S. TAMRES / G. HANSMANN SECTION VDI 87222 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 321 REV 3-63

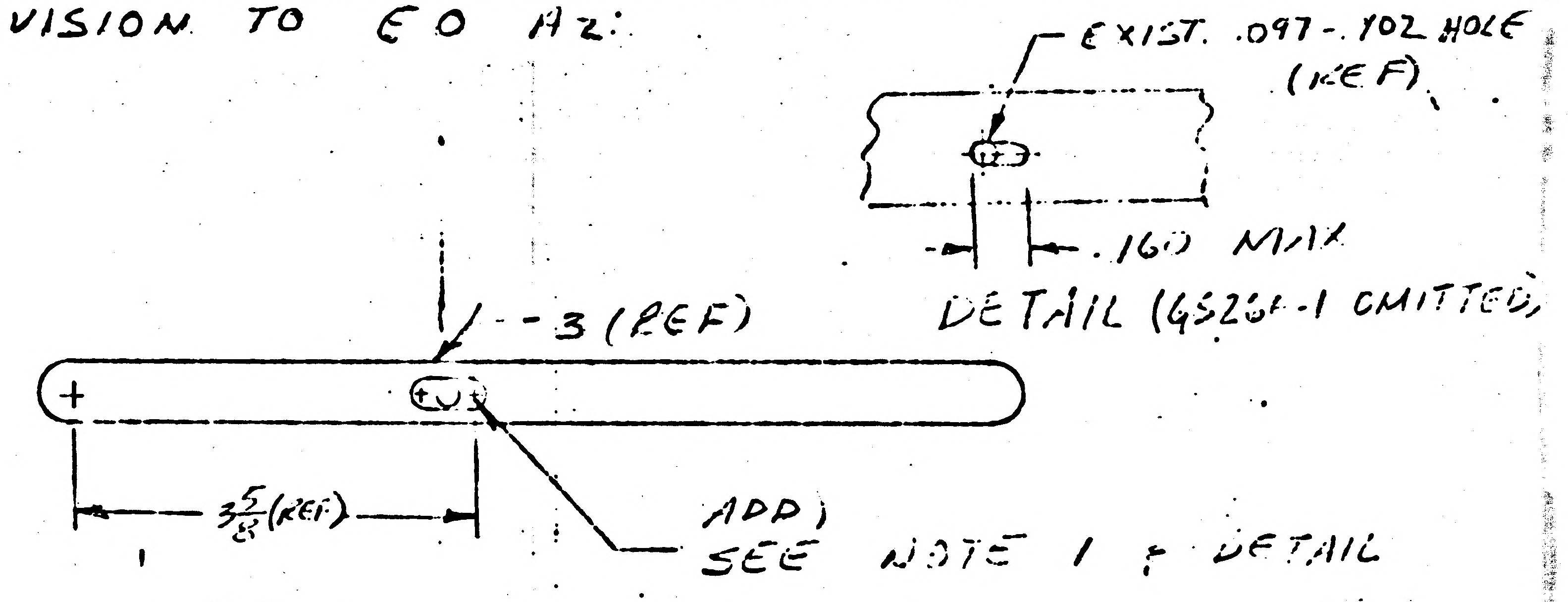
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW2?? -18725 | EO NO. A3

CONTROL INFO NO. LDW 280 C 0745

THIS IS A REVISION TO EO A2:



NOTE 1: (SHOP INFO ONLY. DO NOT INCORPORATE ON DWG)
HOLE MAY BE ELONGATED / TO .160 MAX (SEE DETAIL)

JUL 9 1970

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3174 PEG 92

REASON FOR EO: TO ALLOW RELOCATION OF STANDOFF MWC

DESCRIPTION OF EO: REF EO A2 FOR -3, ADDED NOTE 1

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-10 (4?)	
		THRU	
		LM-15 (4?)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	[illegible]	[illegible]			[illegible]		[illegible]	[illegible]
DATE	7?	[illegible]			[illegible]		7-8-??	7-8-70
	VD1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: STRAP - D/S - LWR DECK - THERMAL SHIELD - CATENARY SUPT

DRAWING NO: LDW 280-18725

EO NO: A3

ISSUED BY S. TAMRES x 87222 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

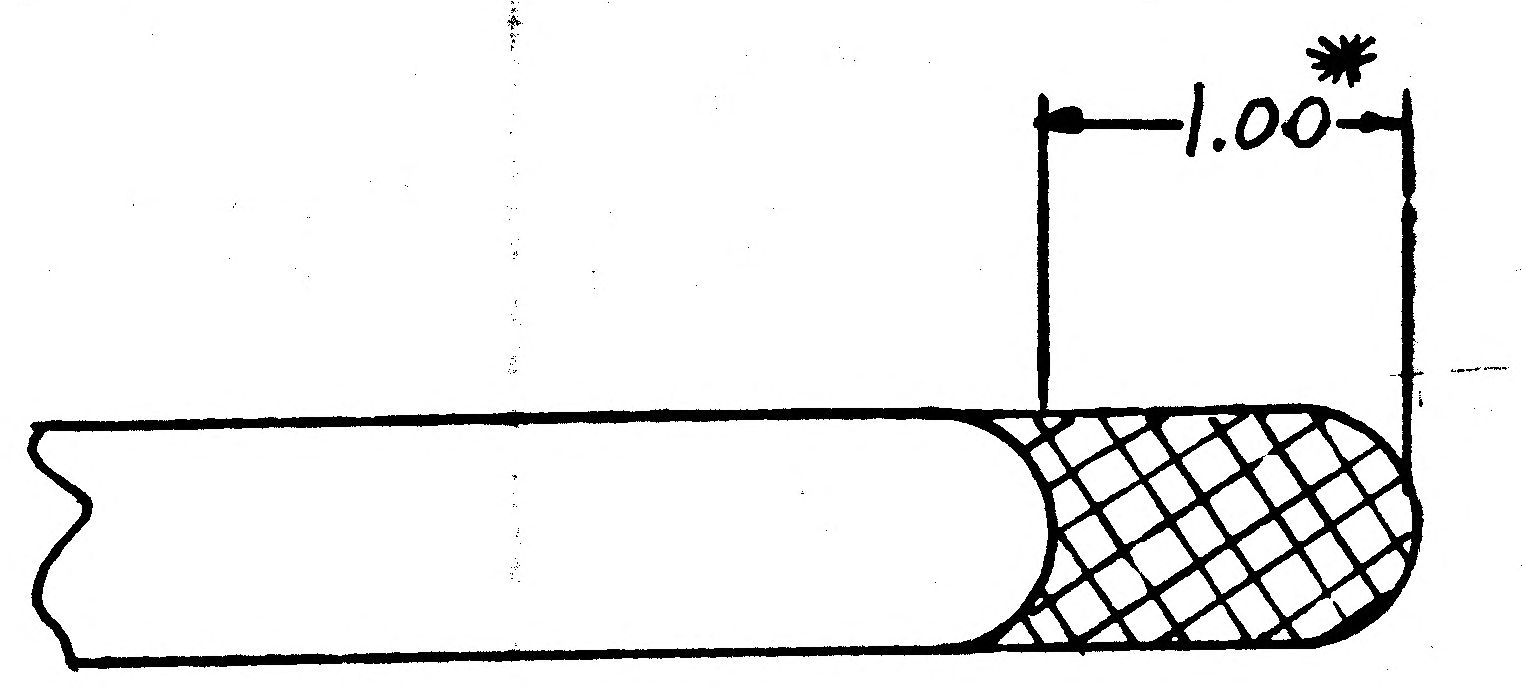
CODE IDENT NO. 26512

ENGINEERING ORD

DWG. NO. LOW280-18725		EO NO. A4	
CONTROL INFO NO. LM-5-23055			

TRIM LOW280-18725-11 AS SHOWN:

* DIM IS NOT TO BE INCORPORATED INTO DWG



LOW 280-18725-11 (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCO 3994

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
STRUCTURAL INTERFERENCE	TRIMMED -11 1,00	

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	7-30-70			7/29/70	7/24/70	7-24-70	7/30/70	7/27/70
LM		LM-10 (40)	THRU	X		X		7-24-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
		LM-13 (43)											KC	CH		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S LOWER DECK THERMAL SHIELD CATENARY SUPPORT	LOW280-18725	A4

7-24-70 ISSUED BY LIAISON E. BERGEMAN/R. SCRANTON X86755 SECTION VDI GROUP NO. 343 PL. 25

01

NAS 9-1100

LDW280-18726

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66528	LM-14(44)	5
		THRU	
LM	LDW280-66528	LM-10(40)	5
PART NO. LDW280-18726-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LM-14(44)	1 EA
		THRU	
LM	LDW280-60544	LM-10(40)	1 EA
LM	LDW280-60543	LM-14(44)	1 EA
		THRU	
LM	LDW280-60543	LM-10(40)	1 EA
LM	LDW280-60542	LM-14(44)	1 EA
		THRU	
LM	LDW280-60542	LM-10(40)	1 EA
LM	LDW280-60541	LM-14(44)	1 EA
		THRU	
LM	LDW280-60541	LM-10(40)	1 EA
PART NO. LDW280-18726-11,-12&-13		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00							
REV											
SHEET											
REV											
SHEET											
REV											

LAST SECT LTR USED		GRUMMAN REL INFO	
LAST DASH NO. USED	-15	PRIM NO.	207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XX±.03 .XXX±.010 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3994 PKG 92	

CONTRACT NO. NAS9-1100 LINE ITEM DOCUMENTATION TYPE II

DRAWN BY	L. DIXON 1-15-70	THERMO	2/4/70
LAYOUT BY	G. CHAN		
CHECKED BY	D. FASS 1-23-70		
GR LEADER	1/27/70		
VEH DES INT	Thorjusen 1-27-70		
STRUCTURE	N.M. 1-27-70	PROJ ENGR	Thorjusen 2-5-70
STRUCTURE	W.H. 1/27/70	REL GROUP	J. Marsh 2/5/70
THERMO	2/4/70		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE ~ LOWER DECK ~ THERMAL SHIELD ~ CATENARY STRAP SPT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18726
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2/20/70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18726-15	E	PLATE	AL.ALLOY SH	QQ-A-250/12	7075-T6	.040 x 2 x 4	NONE	88	
		-13	E	CLIP	↕	↕	↕	.040 x 2 x 3	NONE	88	
		-12	E	CLIP				.040x3x3	NONE	88	
		LDW280-18726-11	E	CLIP	AL.ALLOY SH	QQ-A-250/12	7075-T6	.040X3X3	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18726

SCALE NONE SHEET 2.00

ENG 77.2 7-65

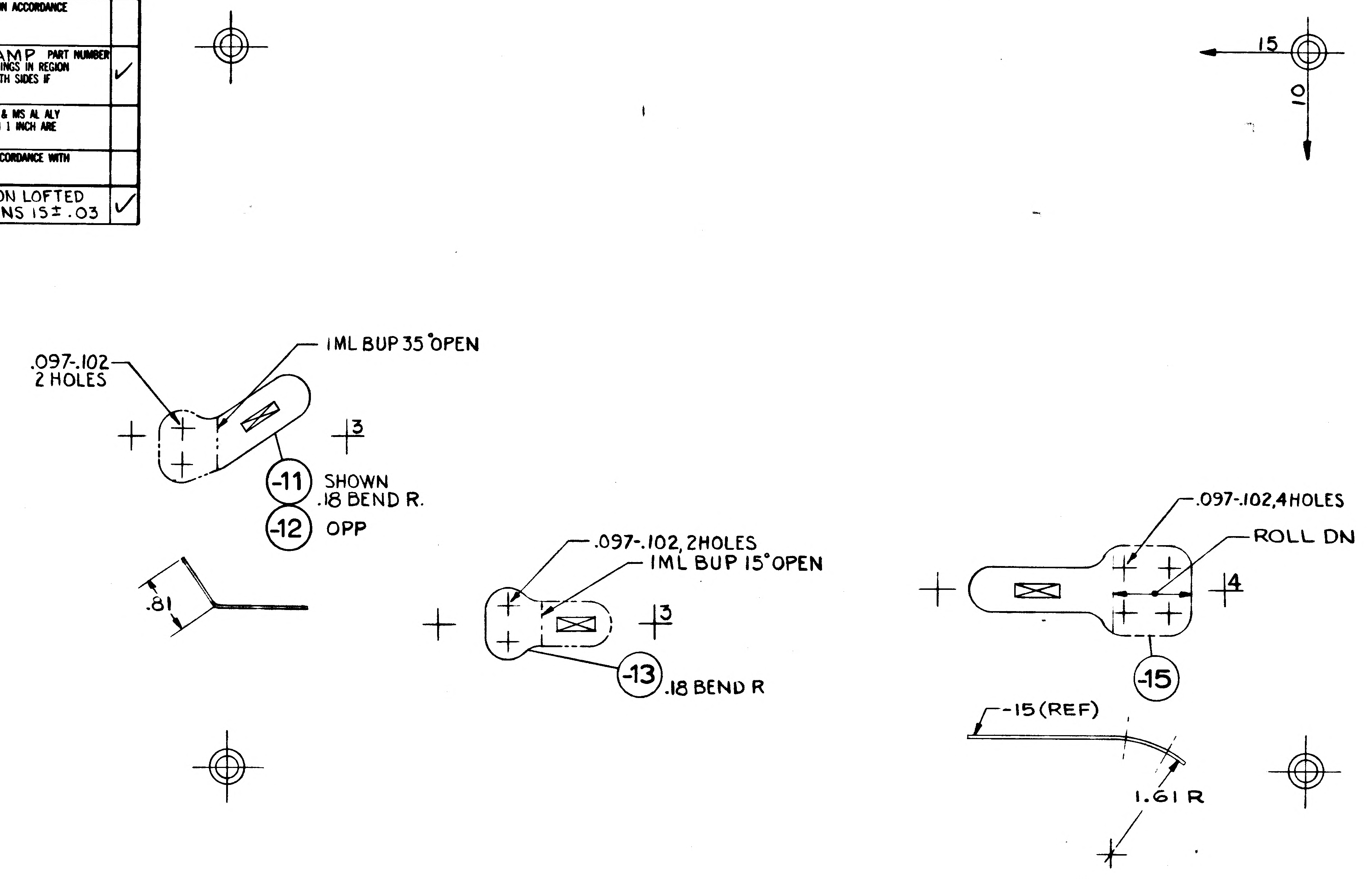
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS 15± .03	✓

TRANS OK 1/14/70

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.



15
10
.097-.102
2 HOLES
IML BUP 35° OPEN
3
-11 SHOWN
.18 BEND R.
-12 OPP
.81
.097-.102, 2HOLES
IML BUP 15° OPEN
3
-13 .18 BEND R
.097-.102, 4HOLES
ROLL DN
4
-15
-15 (REF)
1.61 R

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE C	CODE IDENT NO. 26512	LDW280-18726	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2

01

NAS 9-1100

LDW280-18727

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66661	LM-14(44)	1
		THRU	
LM	LDW280-66661	LM-10(40)	1

PART NO LDW280-18727-21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66661	LM-14(44)	1
		THRU	
LM	LDW280-66661	LM-10(40)	1

PART NO LDW280-18727-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-14(44)	4
		THRU	
LM	LDW280-66663	LM-10(40)	4

PART NO. LDW280-18727-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-14(44)	20
		THRU	
LM	LDW280-66663	LM-10(40)	20

PART NO. LDW280-18727-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66663	LM-14(44)	8
		THRU	
LM	LDW280-66663	LM-10(40)	8

PART NO. LDW280-18727-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66661	LM-14(44)	1
		THRU	
LM	LDW280-66661	LM-10(40)	1

PART NO. LDW280-18727-11

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -21

GRUMMAN REF INFO

PRIM NO. 207 — JK(001) ME-16 2/5/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS - ANGLES
.XX±.03 .XXX±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3994 PKG 92

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY L. DIXON 1-19-70

LAYOUT BY G. CHAN GC

CHECKED BY D. FASS 1-26-70

GR LEADER 1/27/70

VENDES INT 1-27-70

STRUCTURE

STRUCTURE

THERMO 2/4/70

THERMO 2/4/70

PROJ ENGR 2-5-70

REL GROUP 2/5/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIPS
DESCENT STAGE ~ BASE HEAT SHIELD ~
CATENARY STRAP SPT

SIZE B

CODE IDENT NO. 26512

LDW280-18727

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2/20/70

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18727-21	E	CLIP	GT115D1S0040	MIL-T9046 TYP3	6AL-4V	.040 x 1.40 x 2.40	NONE	NONE	
								↑ -19	E	↑	↑	COMP C, STA	↑	↑ x 1.40 x 2.30	↑	↑	
								-17	E			↑		x 1.40 x 1.70			
								-15	E			↓		x 1.30 x 2.40			
								↓ -13	E	↓	↓	MIL-T9046 TYP3	↓	↓ x 1.60 x 2.40	↓	↓	
								LDW280-18727-11	E	CLIP	GT115D1S0040	COMP C, STA	6AL-4V	.040 x 1.40 x 1.70	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18727

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

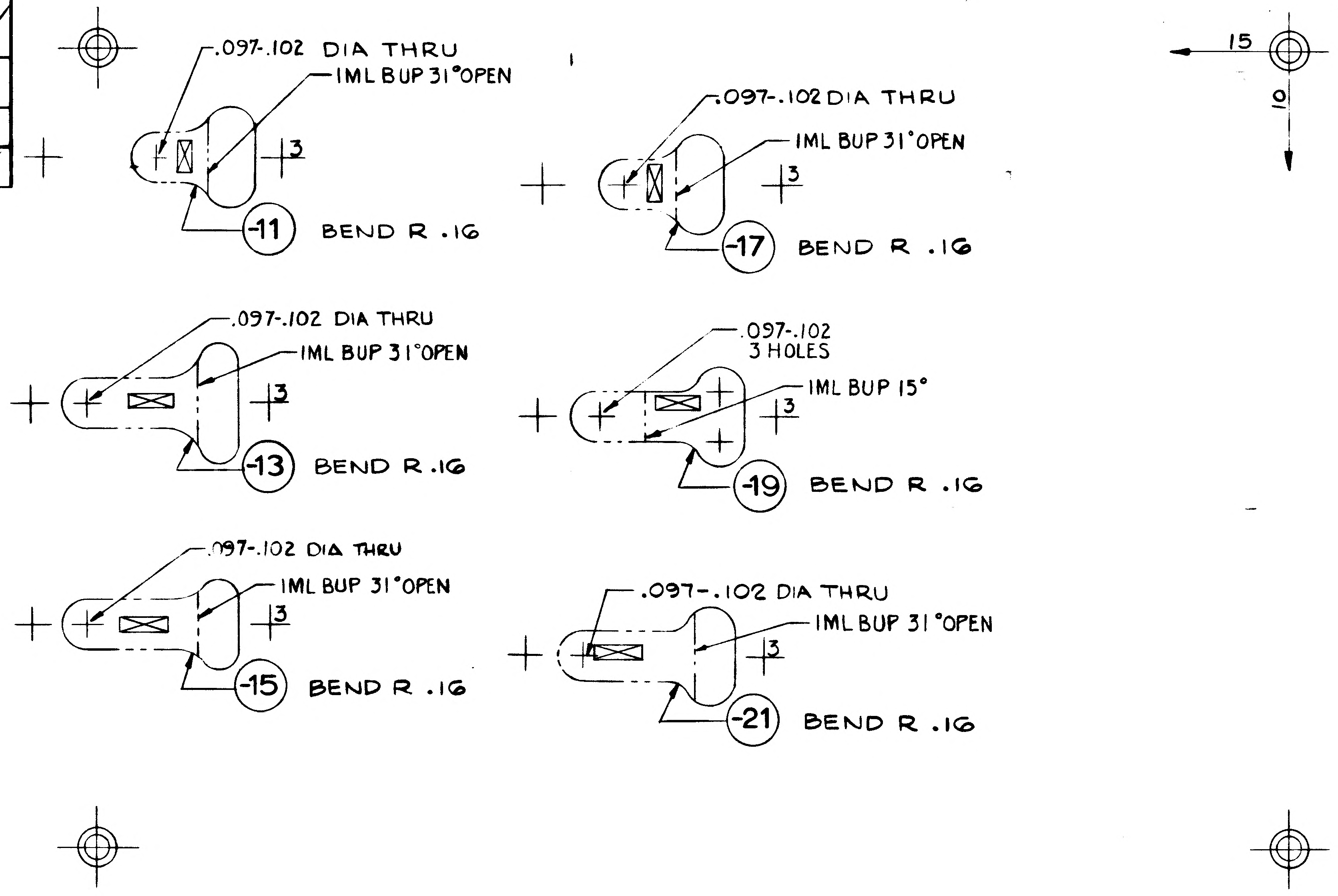
01

NAS 9-1100

TRAM OK
TS 1-16-70

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.



.097-.102 DIA THRU
IML BUP 31°OPEN
3
-11
BEND R .16
.097-.102 DIA THRU
IML BUP 31°OPEN
3
-17
BEND R .16
15
10
.097-.102 DIA THRU
IML BUP 31°OPEN
3
-13
BEND R .16
.097-.102
3 HOLES
IML BUP 15°
3
-19
BEND R .16
.097-.102 DIA THRU
IML BUP 31°OPEN
3
-15
BEND R .16
.097-.102 DIA THRU
IML BUP 31°OPEN
3
-21
BEND R .16

LDW280-18727

LDW280-18727

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18727

SCALE FULL
SHEET 3.00

ENG 734 REV 8-67

FOR PHOTO REPRODUCTION

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18727
EO NO. A1
CONTROL INFO NO. LDW280B9946

IN B/M FOR -11, -13, -15, -17, -19 & -21 MATERIAL "MIL-T-9046, TYPE 3 COMP C ANNEALED", WAS "MIL-T-9046, TYPE 3, COMP C STA"

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG /	LCD 3994 PKG 92

REASON FOR EO: BENDING IS NOT ALLOWED ON TITANIUM IN "STA" CONDITION

DESCRIPTION OF EO: -11, -13, -15, -17, -19 & -21 MAT'L "MIL-T-9046 TYPE 3, COMP C ANNEALED." WAS "MIL-T-9046 TYPE 3 COMP C STA"

GAEC EO RELEASE: JK 2/17/70 (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	
		LM14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	2/12/70			2/11/70	2/16/70		2/16/70	2/16/70

PRIORITY: C

DRAWING TITLE: CLIP - D/S BASE HEAT SHIELD CATENARY STRAP SPT

DRAWING NO. LDW280-18727

EO NO. A1

CDR 2/16/70

ISSUED BY G.CHAN x86046 / G. HANSMANN SECTION VDI GROUP NO. 335 PL W

01

NAS 9-1100

LDW280-18728

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14 (44)	4 EA
↕	↕	LM-13 (43)	4 EA
		LM-12 (42)	4 EA
		LM-11 (41)	4 EA
LM	LDW280-60511	LM-10 (40)	4 EA
PART NO. LDW280-18728-11 & -13		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	~	GRUMMAN REL INFO	
LAST DASH NO. USED	-13	PRIM NO. 207	SK(001) ME-16-2/10/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
SEE NOTE 1

	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3994, PKG 92	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	M. MARKARIAN	THERMO	2/9/70
LAYOUT BY	A. FURIO DS		
CHECKED BY	L ATLAS 1-23-70		
GRP LEADER	1/26/70		
VEH DES INT	1-26-70		
STRUCTURES		PROJ ENGR	1-27-70
STRUCTURES	1/26/70	REL GROUP	J. Marsh
THERMO	2/9/70		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD
DESCENT STAGE~THERMAL BLANKET
LOWER~METEOROID

SIZE	CODE IDENT NO.	
B	26512	LDW280-18728
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2/9/70

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18728-13	E	SHIELD	(SEE NOTE 1, 2 & 4)				NONE	NONE	
								LDW280-18728-11	E	SHIELD	(SEE NOTE 1, 2 & 4)				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE.

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18728
SCALE NONE
SHEET 2.00

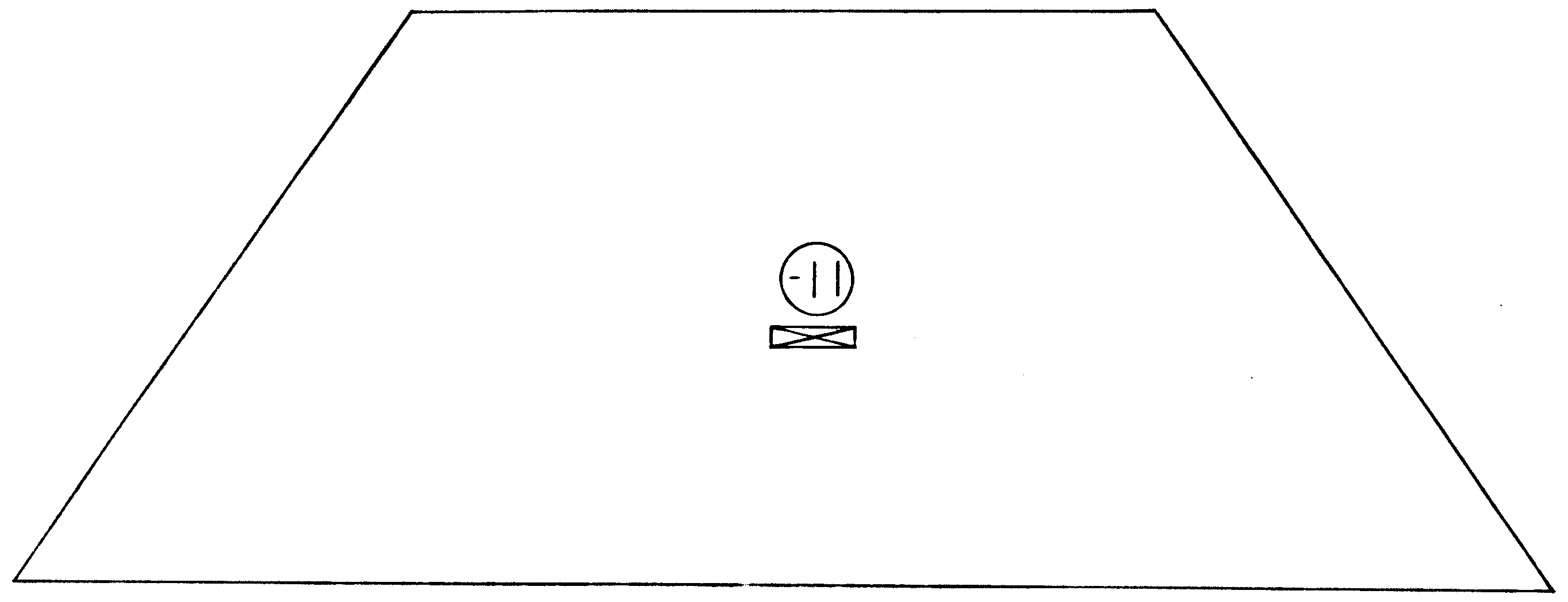
01

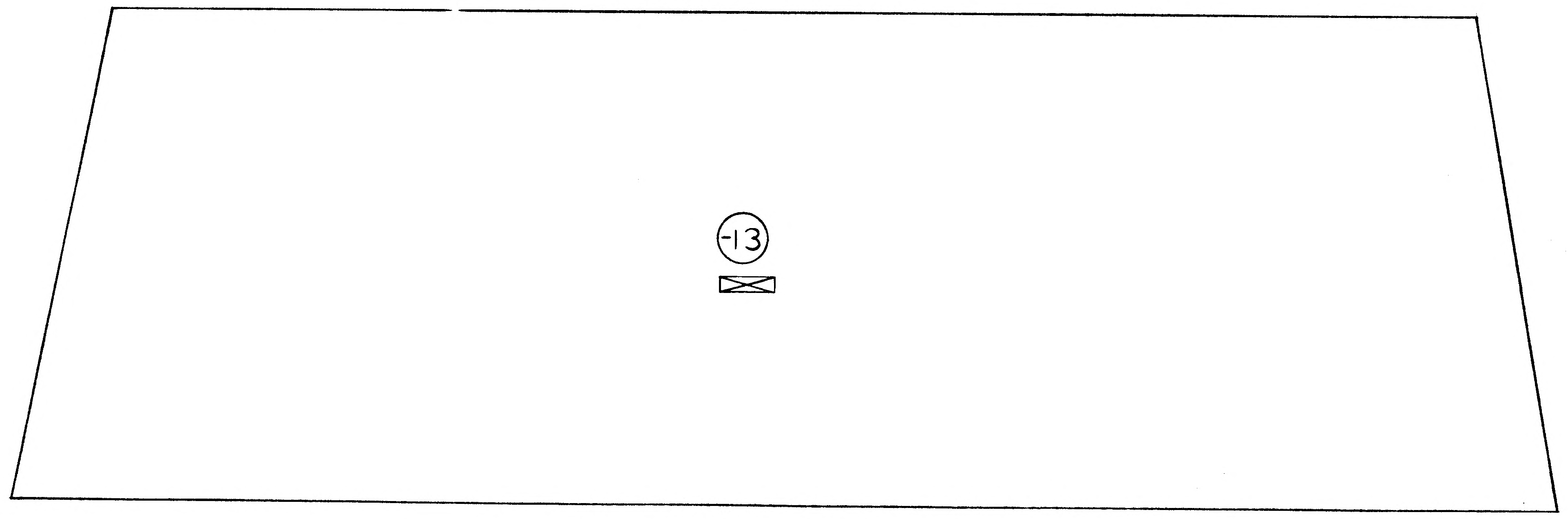
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
MARK PART NUMBER IN ACCORDANCE WITH MIL STD 130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. FINAL SIZE OF SHIELD SHALL BE DETERMINED FROM ENGINEERING APPROVED MASTER TEMPLATE AND/OR FULL SIZE MOCKUP.
2. -11 & -13 TO BE MADE FROM (1) LAYER OF .00125 INCONEL 600 FOIL PER AMS5540E.
3. NO TOOLING HOLES PERMITTED IN PARTS
4. FABRICATE PER LPC280-19.





GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18728
SCALE NONE		SHEET 3.00

LDW280-18728

ENG 73.5 REV 5-67

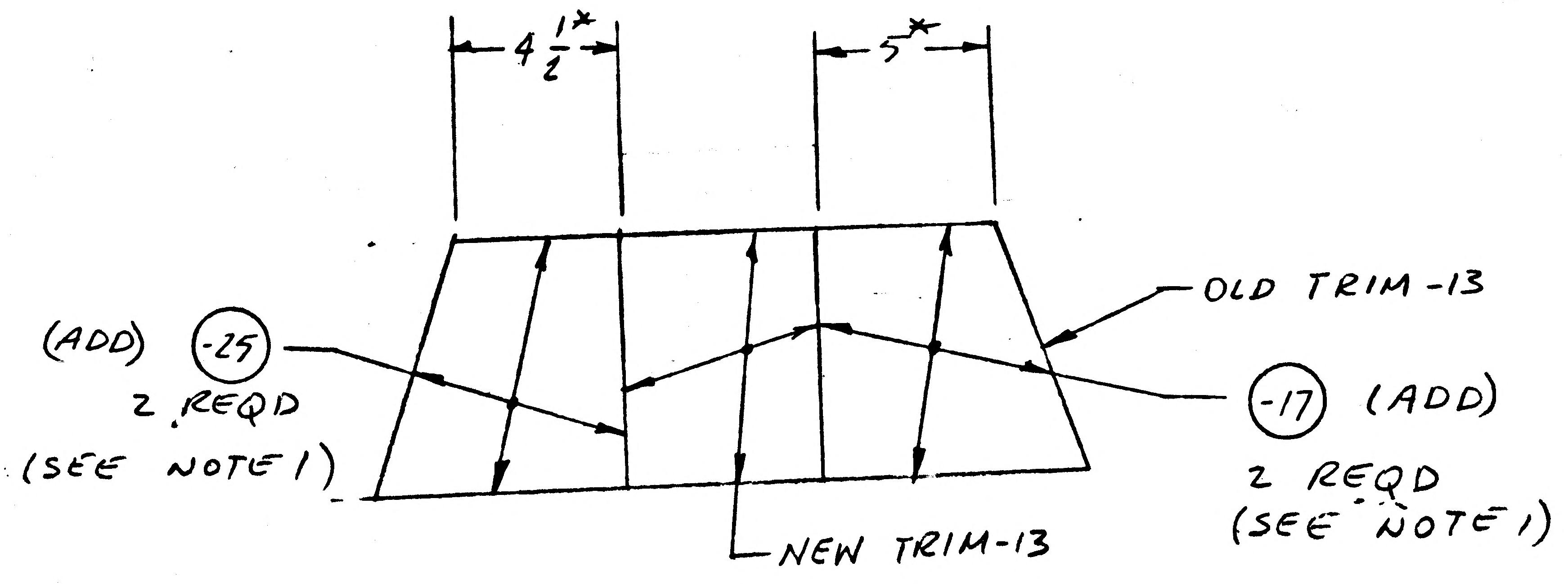
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

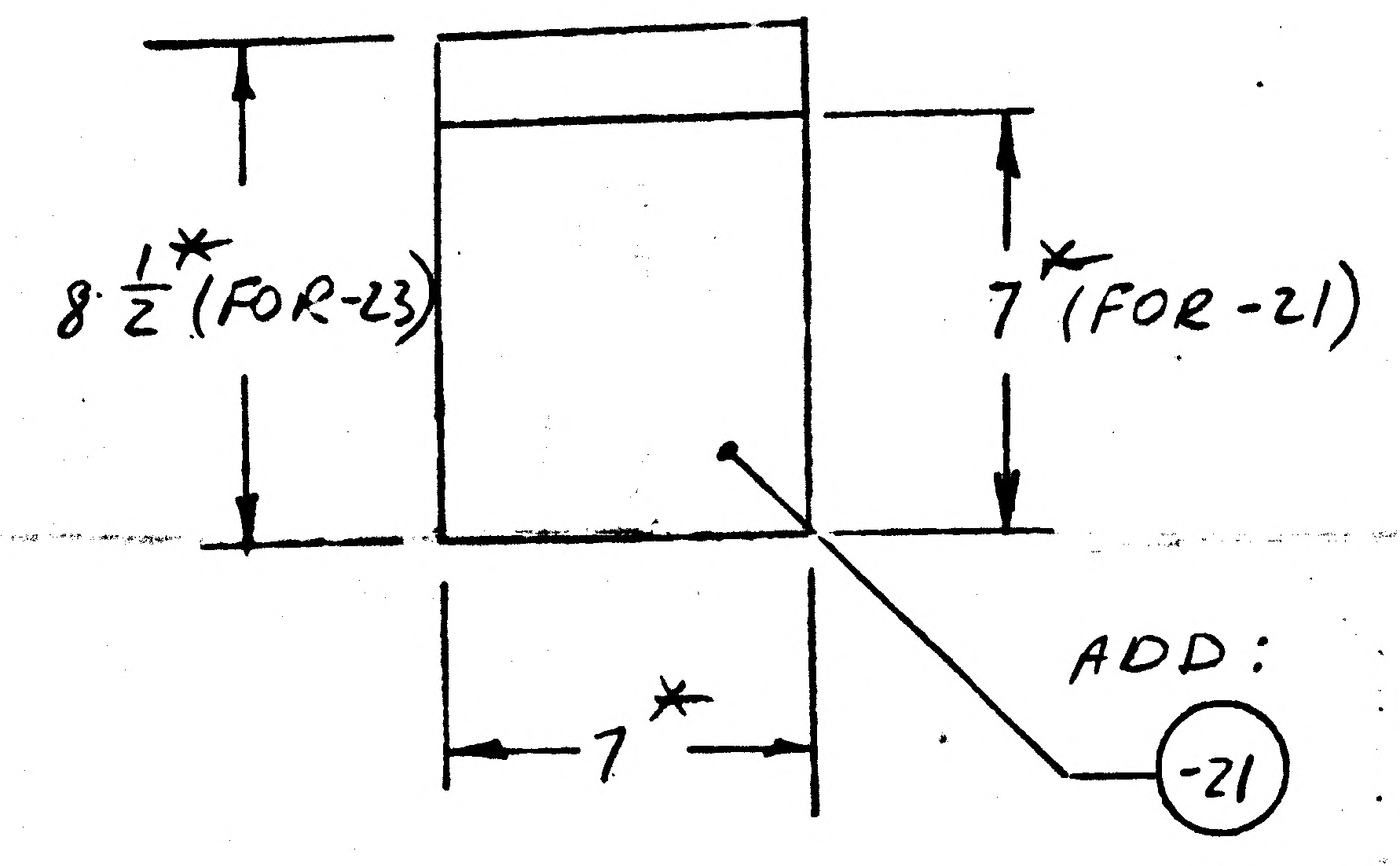
ENG 32.2 REV 3-65

DWG. NO. LDW280-18728		EO NO. A1
CONTROL INFO NO. LDW280C0694		

FOR -13, KEVISE TRIM & IN MODEL BLK, 4 REQD S/B 2 REQD
ADD -15(4), -17(2), -19(4), -21, -23 & -25(2)
MATL, N/A SAME AS -11.

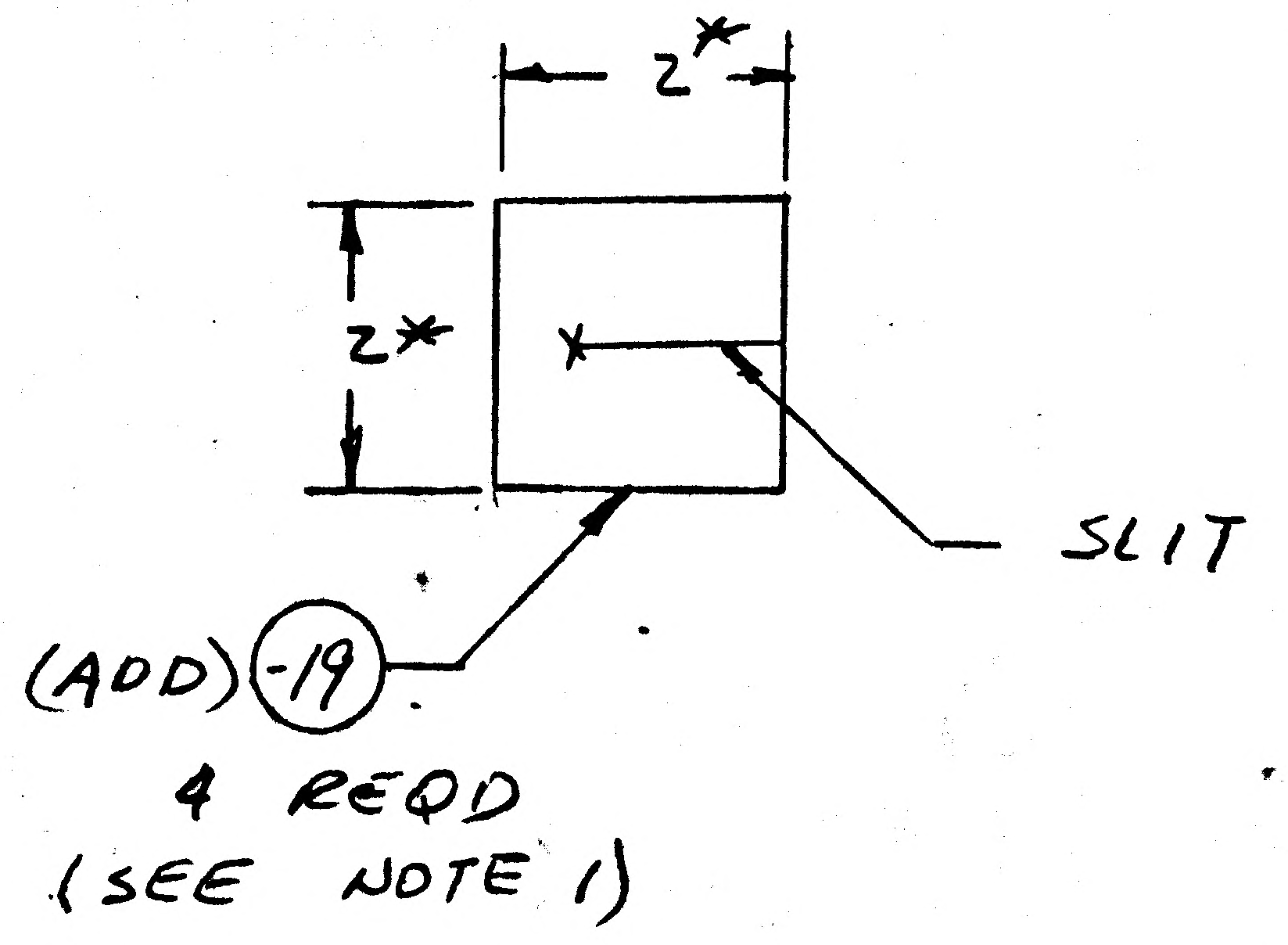


4 1/2*
5*
(ADD) -25
2 REQD
(SEE NOTE 1)
OLD TRIM -13
-17 (ADD)
2 REQD
(SEE NOTE 1)
NEW TRIM-13

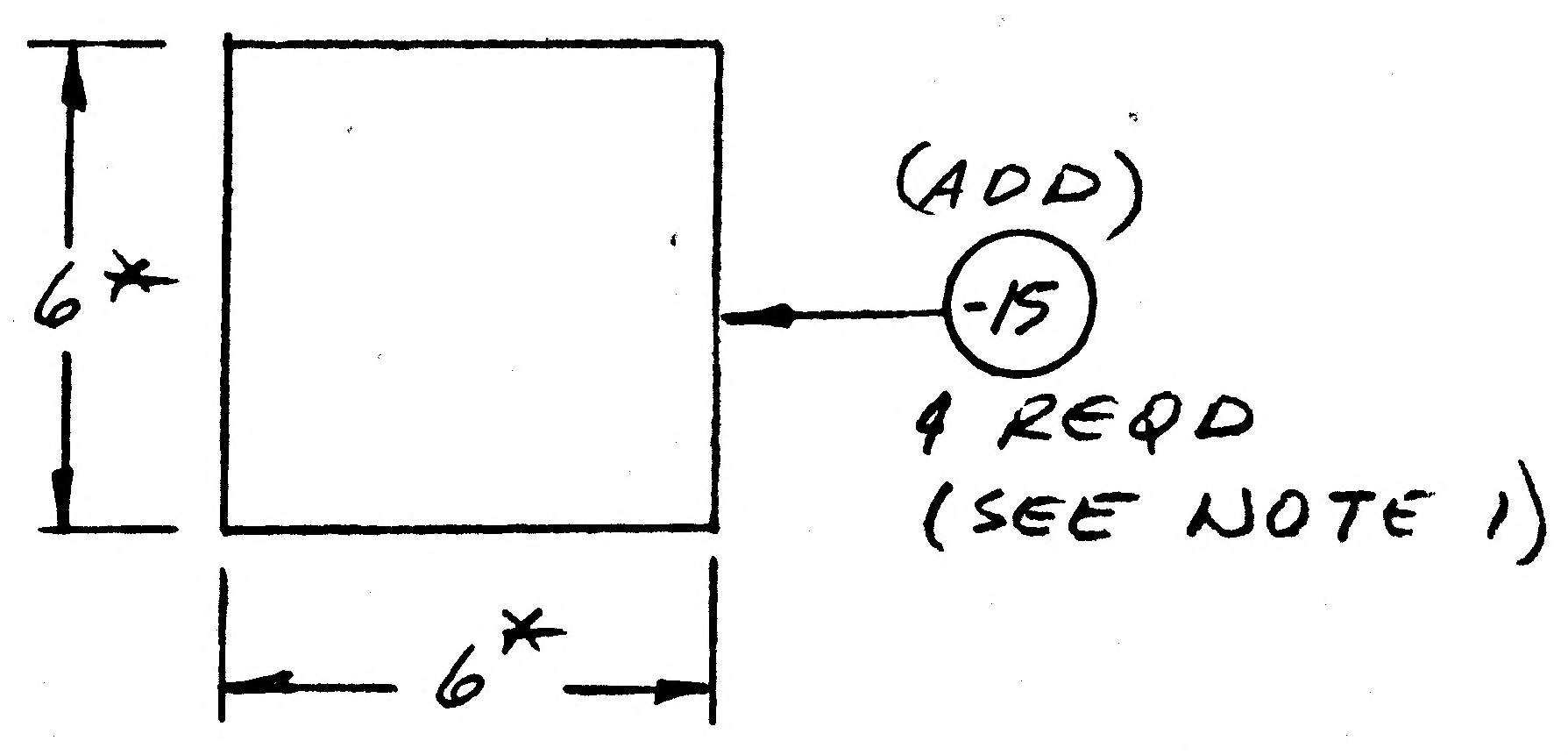


8 1/2* (FOR-23)
7* (FOR-21)
7*
ADD:
-21

-23 (IDENT TO -21 EXCEPT AS SHN) (SEE NOTE 1



2*
2*
SLIT
(ADD) -19
4 REQD
(SEE NOTE 1)



6*
6*
(ADD)
-15
4 REQD
(SEE NOTE 1)

* DIM ARE FOR DETAILER'S USE ONLY. DO NOT INCORP ON DWG.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 92

REASON FOR EO: TO FACILITATE INSTL MWC

DESCRIPTION OF EO: FOR -13, REVISED TRIM & IN MOD/BLK, (2) REQD WAS (4). ADDED -15(4), -17(4), -19(4), -21, -23 & -25

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-13(43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	

APPROVED BY	PH	C.H.			NM		PH	
DATE	6-25-70	6/25/70		6/25/70	6/25/70		6-25-70	6/25/70
	VDI	THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD - D/S - THERMAL BLANKET LOWER METEOROID	LDW280-18728	A1

LDR 050170
ISSUED BY S. TAMRES/G. HANSMANN SECTION VDI x 87222 GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18729

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	8EA
↕	↕	LM-13(43)	8EA
		LM-12(42)	8EA
		LM-11(41)	8EA
LM	LDW280-60511	LM-10(40)	8EA
PART NO. LDW280-18729-17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60511	LM-14(44)	2EA
↕	↕	LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
LM	LDW280-60511	LM-10(40)	2EA
PART NO. LDW280-18729-11, -13 & -15		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	SKY JK(001)		
207	ME-16- 2/6/70		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES

XX=±.03 XXX=±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3994, PKG92

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	M.MARKARIAN	THERMO	2/5/70
LAYOUT BY	L.KRAVITZ		
CHECKED BY	D. Fass 2-3-70		
GRPLEADER	2/5/70		
VEHDESINT	Thorjusen 2-5-70		
STRUCTURES		PROJ ENGR	Thorjusen 2-5-70
STRUCTURES	2/5/70	REL GROUP	2/6/70
THERMO	2/5/70		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRIP
DESCENT STAGE
LOWER THERMAL BLANKET ~ BATTEN

SIZE B

CODE IDENT NO. 26512

LDW280-18729

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2-9-70

0 1

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18729-19	E	STRIP	GT115DIS0020	MIL-T-9046, TYPE 3 COMPC, STA	6AL-4V	.020 × .72 × 12.72	NONE	NONE	
		-17		STRIP				.020 × .72 × 7.35	NONE		
		-15		STRIP				.020 × .72 × 68.05	NONE		
		-13		STRIP				.020 × .72 × 68.05	NONE		
		LDW280-18729-11	E	STRIP	GT115DIS0020	MIL-T-9046, TYPE 3, COMPC, STA	6AL-4V	.020 × .72 × 68.05	NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18729
SCALE NONE
SHEET 2.00

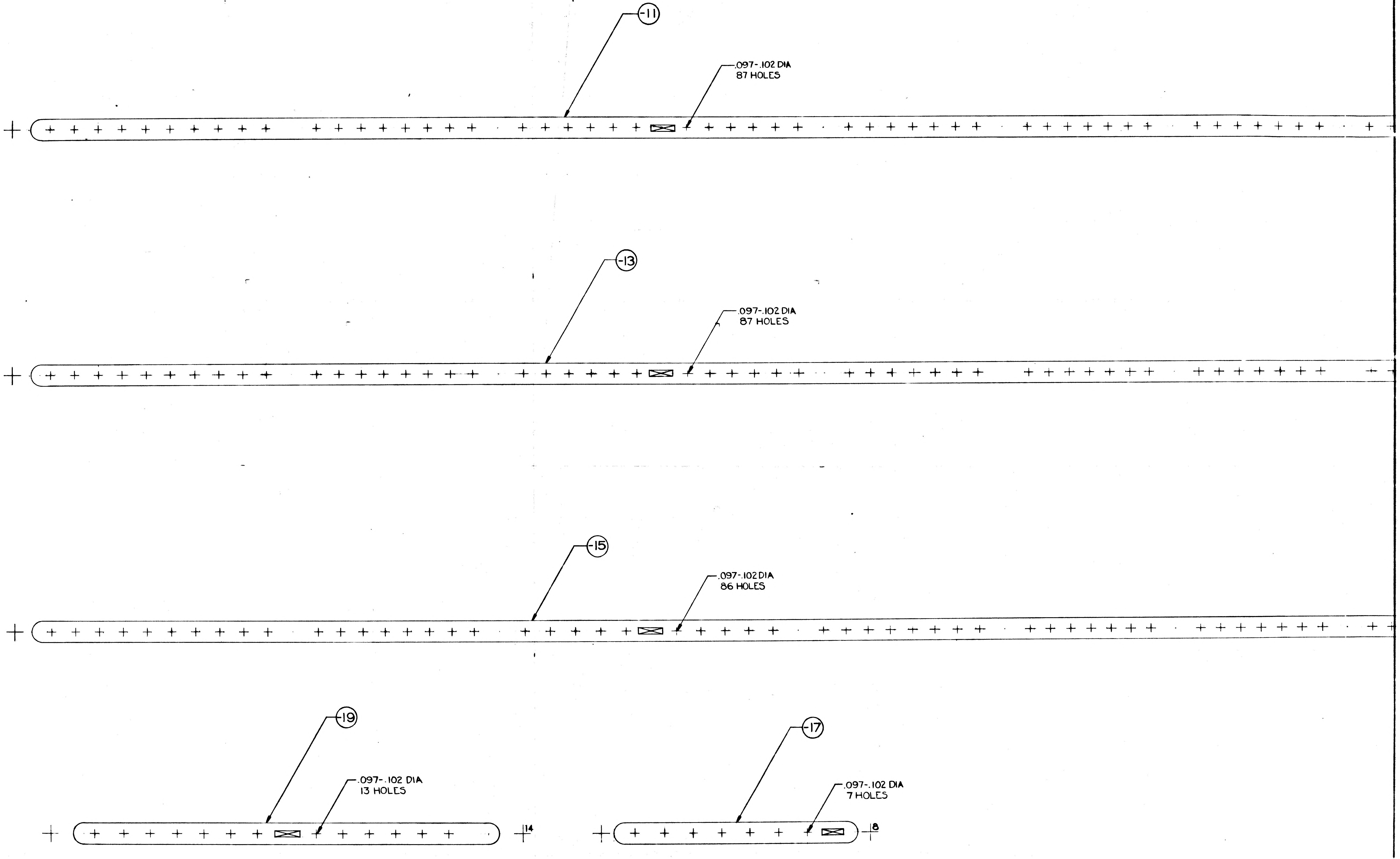
ENG 77.2 7-65

01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓


-11
.097-.102 DIA
87 HOLES
-13
.097-.102 DIA
87 HOLES
-15
.097-.102 DIA
86 HOLES
-19
.097-.102 DIA
13 HOLES
14
-17
.097-.102 DIA
7 HOLES
8

01/02 NAS 9-1100

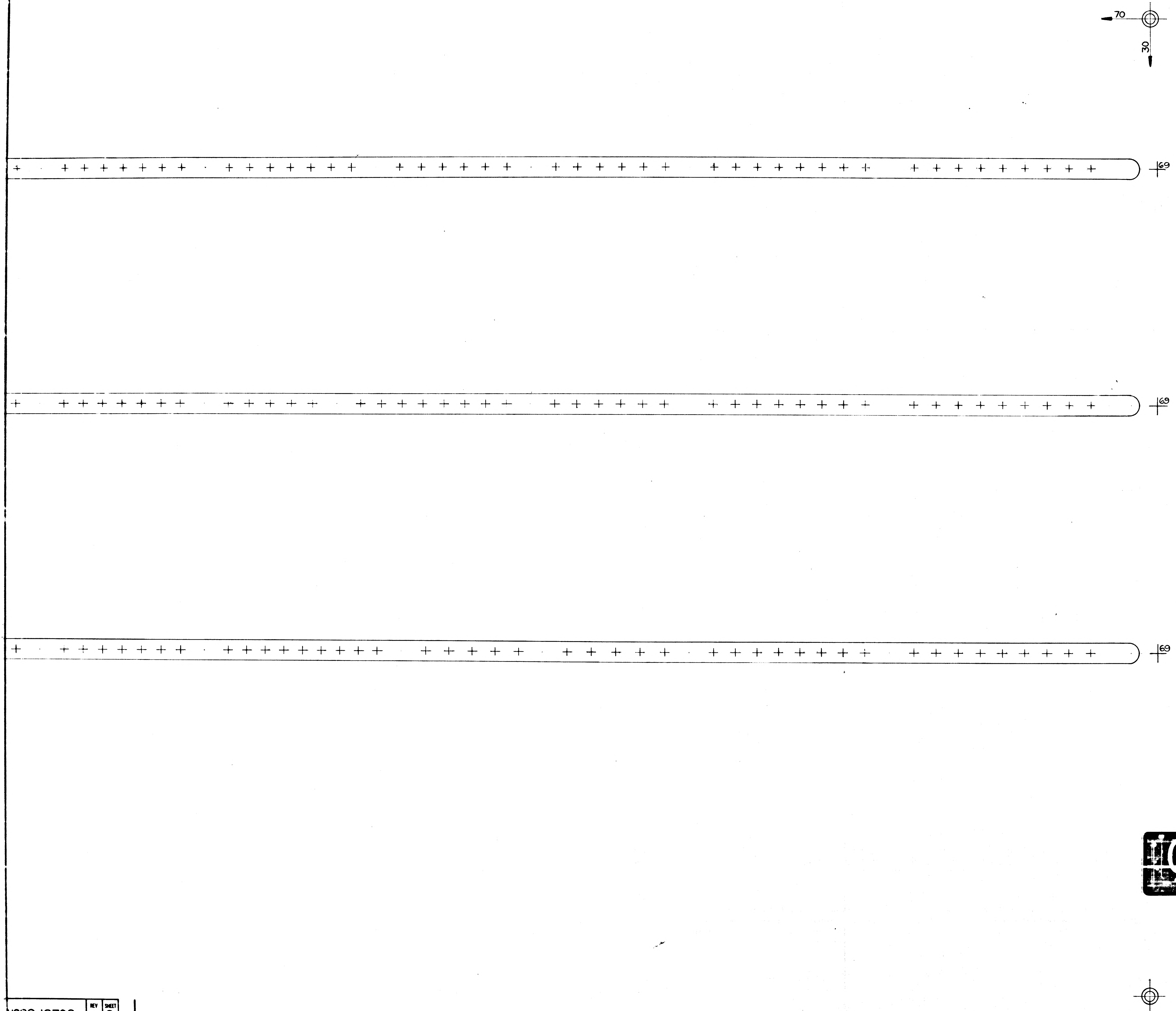
CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18729		3

FRAME 1 FRAME 2

ENG 770.12 11-66

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

NOTE :
1. NO TOOLING HOLES PERMITTED IN PARTS.



LDW280-18729

LDW280-18729

02702

NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG SN STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18729
SCALE FULL		SHEET 3.00 OF

2FR
K2

1 FOR PHOTO REPRODUCTION

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

DISTR. LIST #

W280-18729	REV	SHEET 3

FRAME 1 ← | → FRAME 2

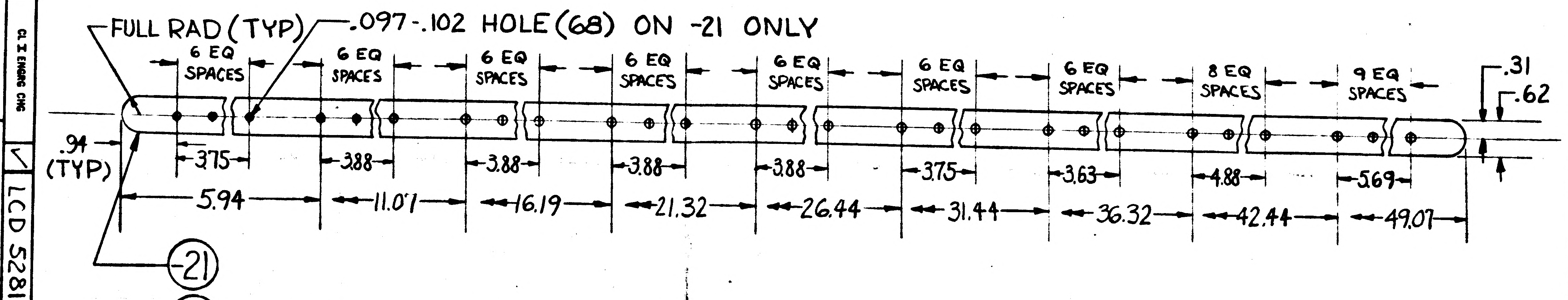
01 NAS 9-1100

GRUMMAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18729
CONTROL INFO NO. LDW280 C0512
EO NO A1

ADD -21, -23, -25 & -27 AS SHOWN BELOW

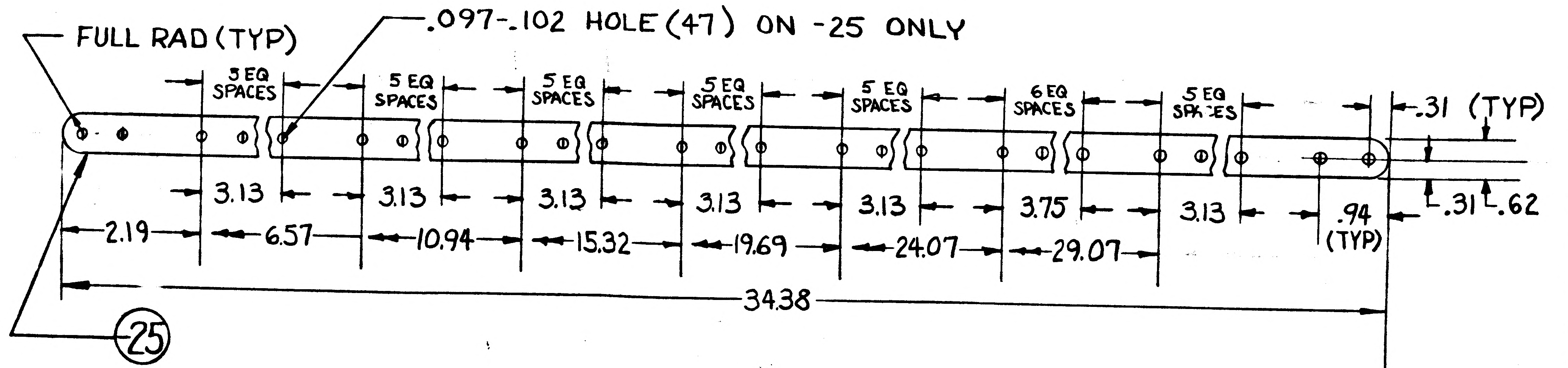
MATERIAL: .050 Ti 6AL-4V, MIL-T-9046 STA
PROCESS, FINISH: NONE
NEXT ASSY: LDW280-66525
EFFECTIVITY: LM-10 (40), 1 EA REQ'D PER MODULE
I & T - E



FULL RAD (TYP)
.097-.102 HOLE (68) ON -21 ONLY
6 EQ SPACES
6 EQ SPACES
6 EQ SPACES
6 EQ SPACES
6 EQ SPACES
6 EQ SPACES
6 EQ SPACES
8 EQ SPACES
9 EQ SPACES
.31
.62
.94 (TYP)
3.75
3.88
3.88
3.88
3.88
3.75
3.63
4.88
5.69
5.94
11.07
16.19
21.32
26.44
31.44
36.32
42.44
49.07

(-21)

(-23) IDENTICAL EXCEPT AS NOTED



FULL RAD (TYP)
.097-.102 HOLE (47) ON -25 ONLY
3 EQ SPACES
5 EQ SPACES
5 EQ SPACES
5 EQ SPACES
5 EQ SPACES
6 EQ SPACES
5 EQ SPACES
.31 (TYP)
3.13
3.13
3.13
3.13
3.13
3.75
3.13
.94 (TYP)
.31
.62
2.19
6.57
10.94
15.32
19.69
24.07
29.07
34.38

(-25)

(-27) IDENTICAL EXCEPT AS NOTED

DETAIL SPEC REQ | CL II ENGRG CHG | CL I ENGRG CHG ✓ LCD 5281 PKG 50

REASON FOR EO: TO SHIELD METS FROM FIRE UNTIL TOUCHDOWN BLAST

DESCRIPTION OF EO: ADDED -21, -23, -25 & -27

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	

DRAWING CHANGE REQ'D		DISPOSITION OF PARTS		APPROVED BY	DATE
REVISE DWG ✓	RECORD EO	NOT REQ'D			6/4/70

PRIORITY: C

DRAWING TITLE: STRIP-D/S BLANKET ~ BATTEN LWR THERMAL

SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
VDI		6/5/70	6/11/70		6-12-70	6/12/70

DRAWING NO. LDW280-18729 EO NO. A1

6/12/70 ISSUED BY J.FAHNER/G.HANSMANN x 87222 SECTION VD1 GROUP NO. 280 PL 25

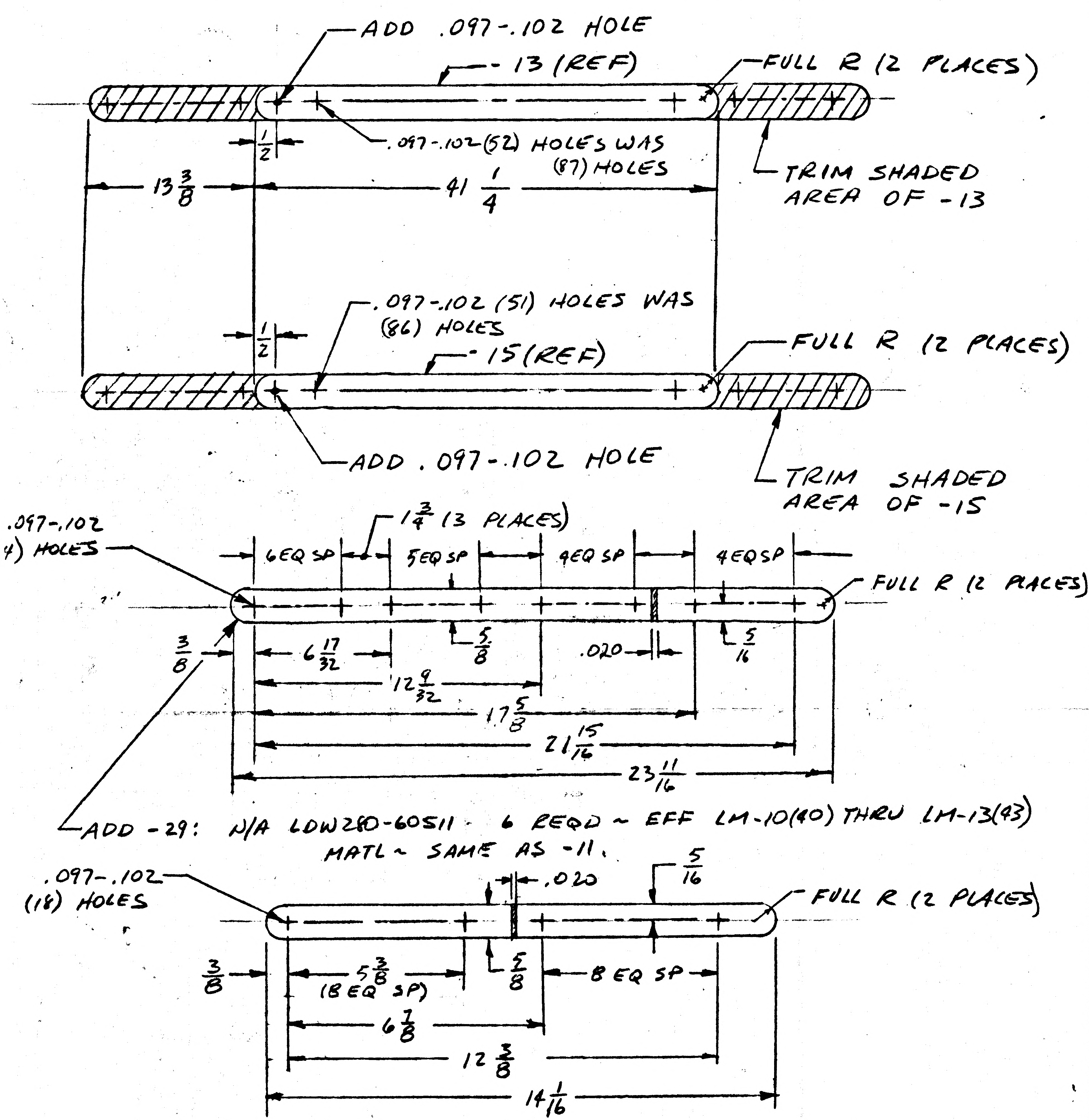
ENG 32.2 REV 2-68

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18729 | EO NO. A2
CONTROL INFO NO. LDW280C0693

REWORK -13 & -15 & ADD -29 & -31 AS NOTED BELOW:
IN MODEL BLK FOR -17 & -19 8 EA REQD S/B 2 EA REQD


ADD .097-.102 HOLE
-13 (REF)
FULL R (2 PLACES)
.097-.102 (52) HOLES WAS (87) HOLES
TRIM SHADED AREA OF -13
1/2
13 3/8
41 1/4
.097-.102 (51) HOLES WAS (86) HOLES
-15 (REF)
FULL R (2 PLACES)
1/2
ADD .097-.102 HOLE
TRIM SHADED AREA OF -15
.097-.102 (24) HOLES
1 3/4 (3 PLACES)
6 EQ SP
5 EQ SP
4 EQ SP
4 EQ SP
FULL R (2 PLACES)
3/8
6 17/32
5/8
.020
5/16
12 9/32
17 5/8
21 15/16
23 11/16
.097-.102 (18) HOLES
.020
5/16
FULL R (2 PLACES)
3/8
5 3/8 (8 EQ SP)
5/8
8 EQ SP
6 7/8
12 3/8
14 1/16

ADD -29: N/A LDW280-60511 ~ 6 REQD ~ EFF LM-10(40) THRU LM-13(43)
MATL ~ SAME AS -11.

ADD -31: N/A LDW280-60511 ~ 8 REQD ~ EFF LM-10(40) THRU LM-13(43)
MAT'L ~ SAME AS -11.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG 92

REASON FOR EO: ADDITION OF NEW STRAPS REQD DUE TO REDESIGN OF DOORS. MWC

DESCRIPTION OF EO: REVISED TRIM OF -13 & -15 & ADDED -29 & -31. IN MODEL BLK FOR -17 & -19 (2) REQD WAS (8) REQD.

GAEC EO RELEASE ®

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY					NM			
DATE	6 22 70	6/22/70		6/19/70	6/22/70		6/22/70	6/22/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOMT~~

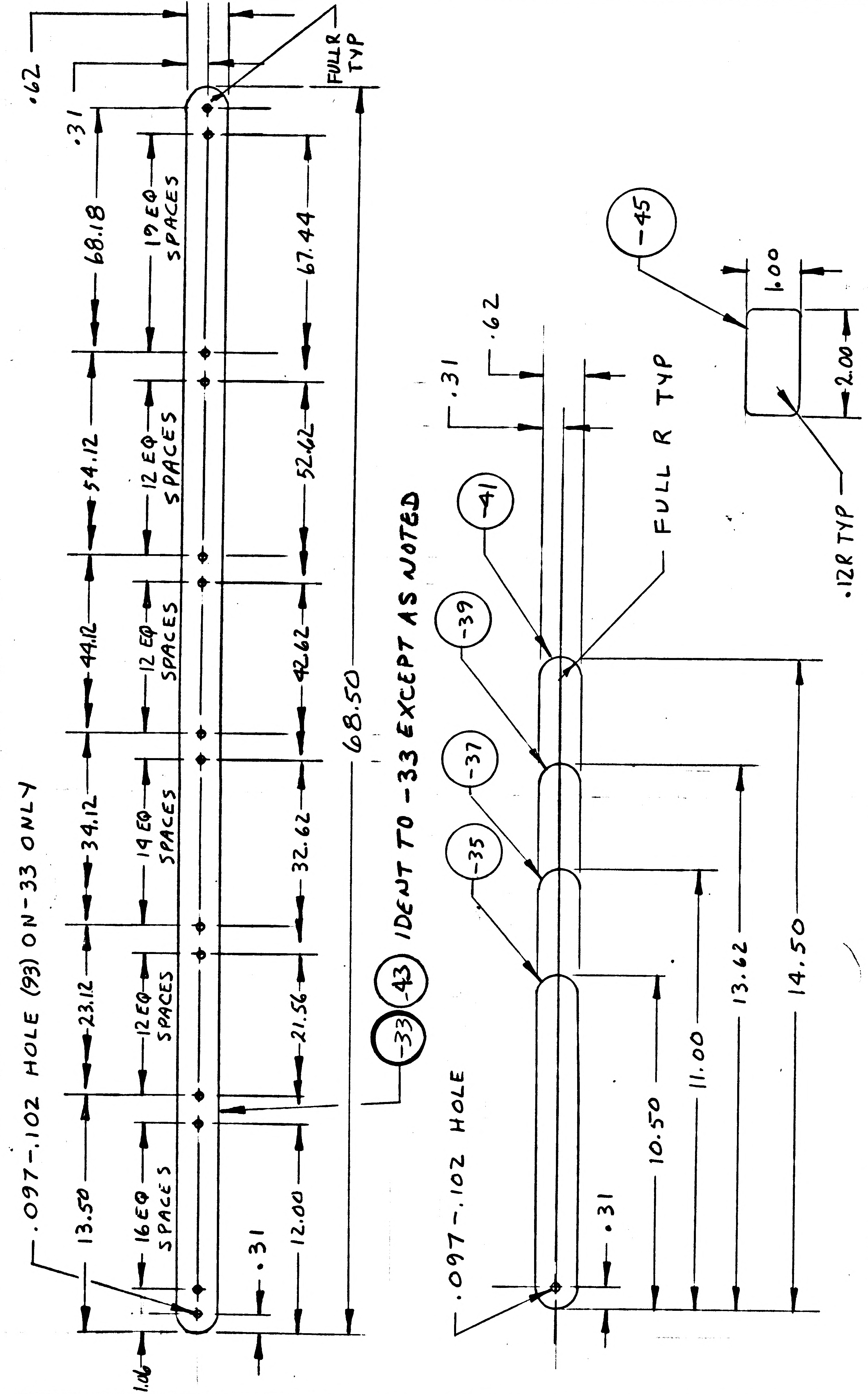
PRIORITY: C
DRAWING TITLE: STRIP ~ D/S ~ LWR THERMAL BLANKET ~ BATTEN
DRAWING NO.: LDW280-18729
EO NO.: A2

CDR 050170
ISSUED BY J. TAMRES/G. HANSMANN SECTION VDI ×87222 GROUP NO. 335 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18729	EO NO. A3
CONTROL INFO NO. LDW280C1394	


.62
.31
FULL R TYP
.097-.102 HOLE (93) ON -33 ONLY
13.50
23.12
34.12
44.12
54.12
68.18
16 EQ SPACES
12 EQ SPACES
19 EQ SPACES
12 EQ SPACES
12 EQ SPACES
19 EQ SPACES
1.06
.31
12.00
21.56
32.62
42.62
52.62
67.44
68.50
-33
43
IDENT TO -33 EXCEPT AS NOTED
.097-.102 HOLE
-35
-37
-39
-41
.31
10.50
11.00
13.62
14.50
.31
.62
FULL R TYP
-45
1.00
2.00
.12R TYP

ADD -33, -35, -37, -39, -41, -43 & -45 AS SHOWN
MATERIAL: .020 Ti 6AL-4V MIL-T-9046 STA
PROCESS & FINISH NONE
NEXT ASSY: LDW 80-60511
EFFECTIVITY: LM-10 (40), LM-11 (41) & LM-12 (42)
QTY PER MODULE: 1 ea OF -33, -35, -37, -39, -41 & -43, 10 OF -45
I&T: E

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5802 PKG 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL FUT SHIELD REQ'D FOR LRV PROTECTION	IN F/D & B/M ADDED -33, -35, -37, -39, -41, -43 & -45	

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 691	LM-10 (40)	
	LFM 691	LM-11 (41)	
		LM-12 (42)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		NOT REQ'D		DATE	4-20-71	4/20/71			4-20-71			4/20/71	4-20-71
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT THERM	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRIP-D/S LWR THERMAL BLANKET-BATTEN	LDW280-18729	A3

042071
ISSUED BY C. LEBO X1443 SECTION VDI GROUP NO 0335 PL 025

01
NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

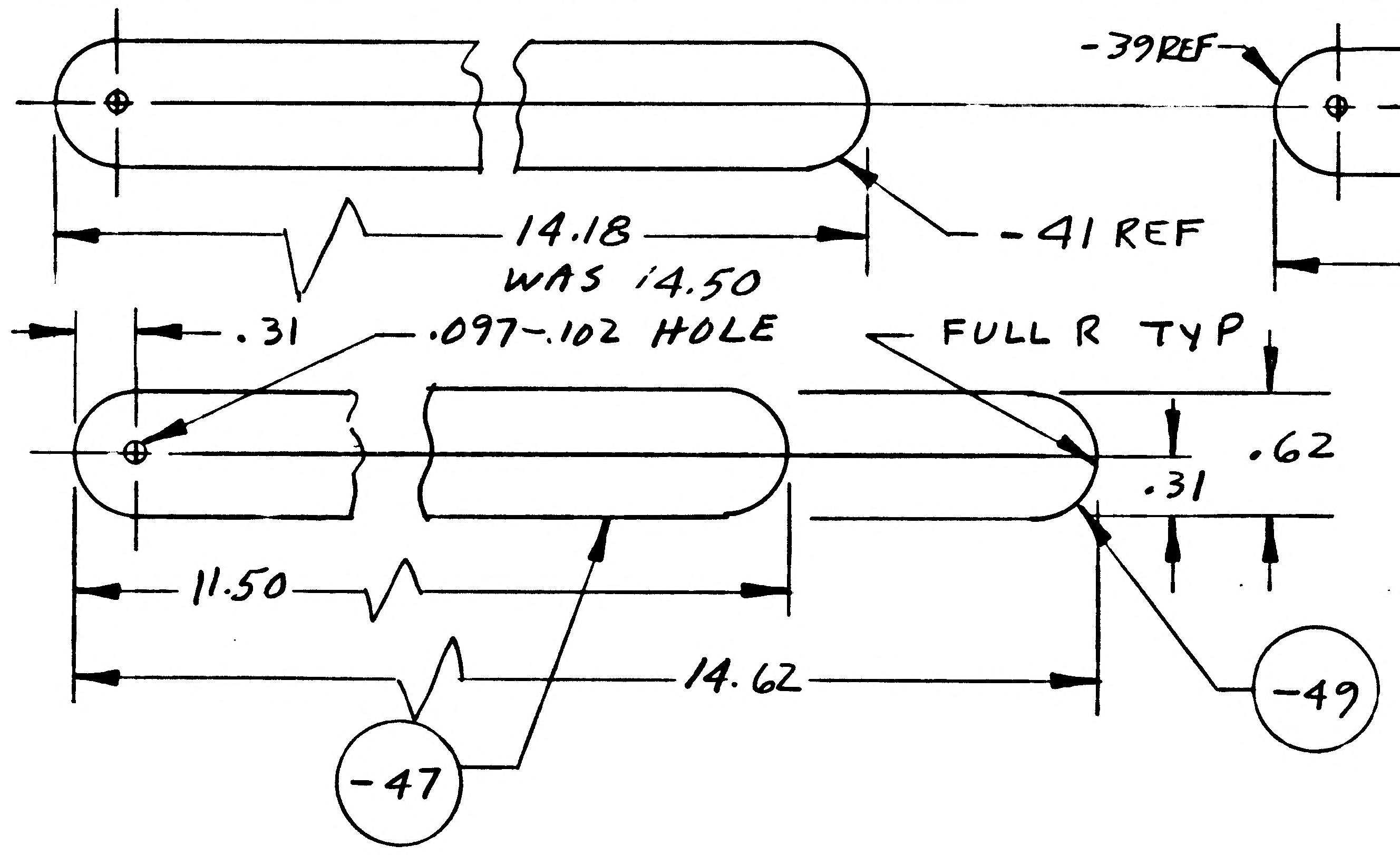
CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18729 | EO NO. A4

CONTROL INFO NO. LDW280C1397



ADD -47 & -49 AS SHOWN
MATERIAL: .020 6AL 4V
MIL-T-9046 STA
PROCESS & FINISH: NONE
EFF.: LM 10 (40) THRU LM 12 (42)
QTY PER MODULE: 1 ea
N/A: LDW 280-60511
I & T: E.
REWORK -39 & -41 AS SHOWN.
REMOVE -35 & -37
FROM F/D, B/M & M/B.
IN M/B FOR -45 QTY 8
WAS 10 ON N/A LDW280
-60511

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 5802 PKG 50

REASON FOR EO: ADDITIONAL FUT SHIELD REQ'D FOR LRV PROTECTION

DESCRIPTION OF EO: ADDED -47 & -49, REMOVED -35 & -37, REWORK -41 14.18 DIM WAS 14.50 & -39 12.00 DIM WAS 13.62

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 691	LM-10 (40)	
	LFM 691	LM-11 (41)	
		LM-12 (42)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓	-35 -37	DATE	4-21-71			4-21-71	4/21/71		4/21/71	4-21-71
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
✓	STRIP-D/S LWR THERMAL BLANKET BATTEN	LDW280-18729	A4

042171

ISSUED BY C. LEBO X 1443

SECTION VDI

GROUP NO. 0335 PL 025

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18729		EO NO. A5
CONTROL INFO NO. LDW280C1409			

IN F/D & 4M ADD NOTE *

NOTE * -33, -39, -41, -43, -45, -47 AND -49 MAY BE MADE FROM .020 TI 6AL-4V, ANNEALED, MIL-T-9046, STOCK. THESE PARTS ARE IDENT TO AND INTERCHANGEABLE WITH PARTS MADE FROM .020 TI 6AL-4V STA.

* USE NEXT AVAIL NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 5802 PK 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
MATL SUBSTITUTION REQ'D TO FACILITATE MANUFACTURE.	ADDED NOTE *	

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-12 (42)	
	LFM 691	LM-11 (41)	
LM	LFM 691	LM-10 (40)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	APPROVED BY	P&T			Rc.	NM			Botti
✓		NOT	REQD	DATE	5-6-71			5/6/71	5/7/71		5/6/71	5-7-71
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP-D S LOWER THERMAL BLANKET - BATTEN	LDW280-18729	A5

ISSUED BY 5-7-71 G. BELEV X1443 SECTION VEH DES INT GROUP NO. 0335 PL 025

01

NAS 9-1100

LDW280-18730

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	1
		LTA-3 DR/1(460)	1
		LM-14 44	1
		LM-13 43	1
		LM-12 42	1
		LM-11 41	1
LM	LDW280-60522	LM-10 40	1

PART NO. LDW280-18730-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	1 EA
		LTA-3 DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60521	LM-10(40)	1 EA

PART NO. LDW280-18730-11, -13, -15 & -17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED —
LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207
VK(01) ME-16 12/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES
± 1/16 .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
3990 CCA 2205
ECPA 120

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY LITVINOFF
LAYOUT BY SHAPIRO/LANG
CHECKED BY JDCOBB 7-26-69
GP LEADER Thomson 7-28-69
VEH DESIN
STRUCTURES
STRUCTURES NM 7-31-69
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE~ L.H & FWD UPPER DECK PROPELLANT TANK CUTOUT~ FRAME

SIZE B
CODE IDENT NO. 26512
LDW280-18730
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-25-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18730-19	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.063 X 3 X 8	T6	88	
								LDW280-18730-17	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 16	T6	88	
								LDW280-18730-15	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 x 4 x 15	T6	88	
								LDW280-18730-13	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 x 19 x 53	NONE	88	
								LDW280-18730-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 x 34 x 53	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

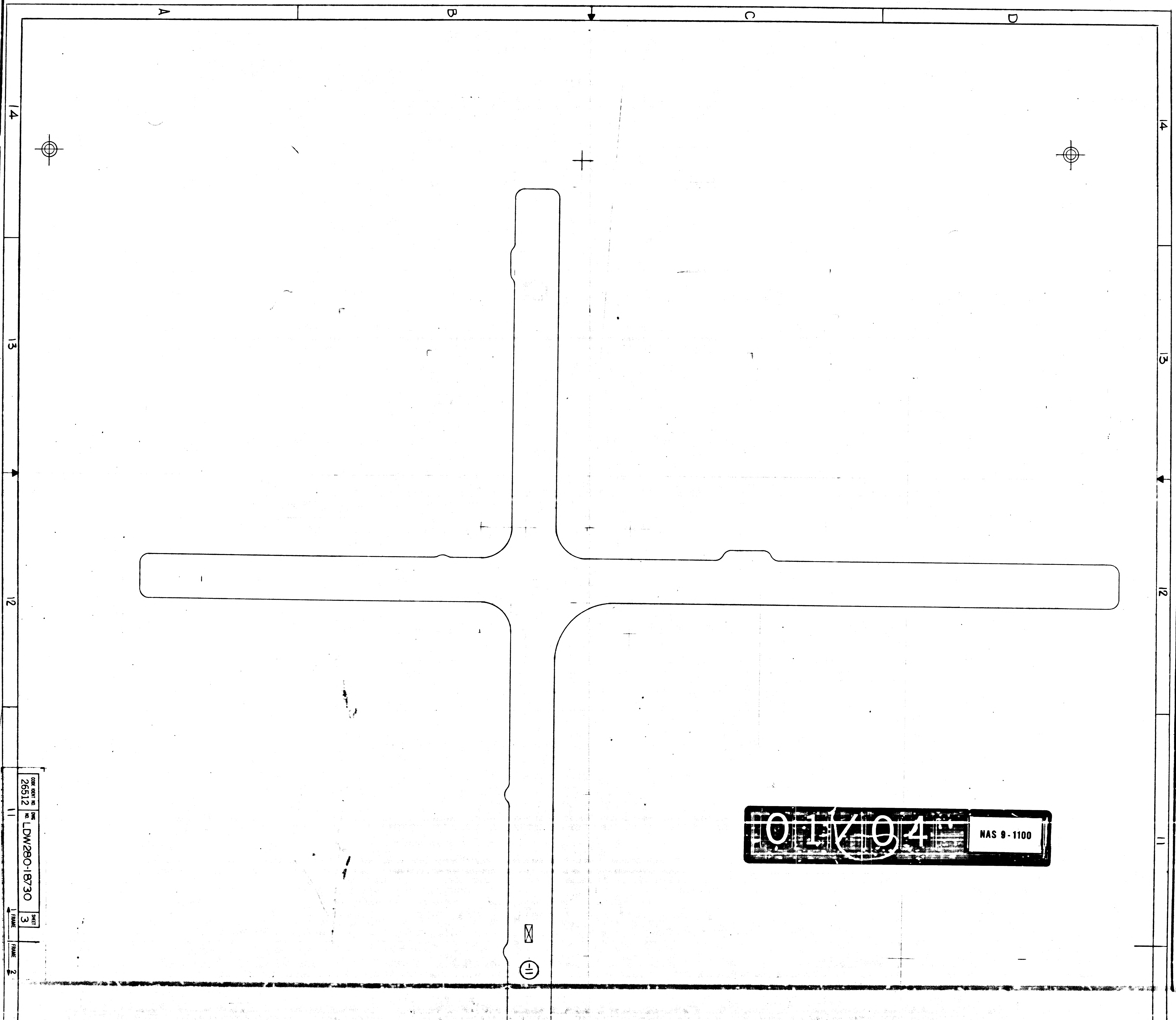
SIZE B
CODE IDENT NO. 26512
LDW280-18730
SCALE NONE
SHEET 200

ENG 77.2 7-65

01

NAS 9-1100

LDW280-18730 SH3


A
B
C
D
14
13
12
11

CODE IDENT NO 26512

DWG NO LDW280-18730

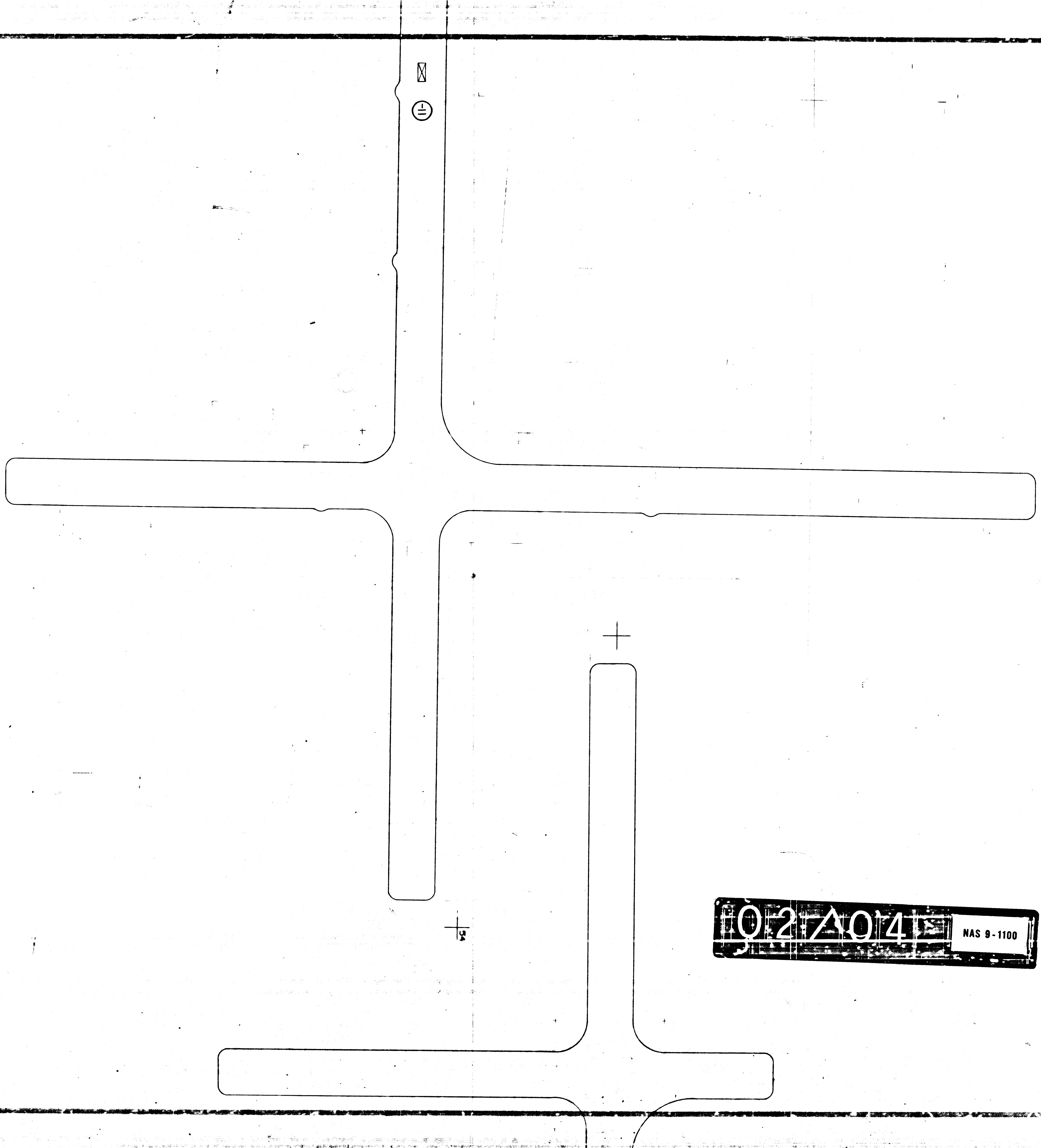
SHEET 3

FRAME 1

FRAME 2

01/04

NAS 9-1100



10

9

8

7

CODE IDENT NO. 26512

DWG NO. LDW280-18730

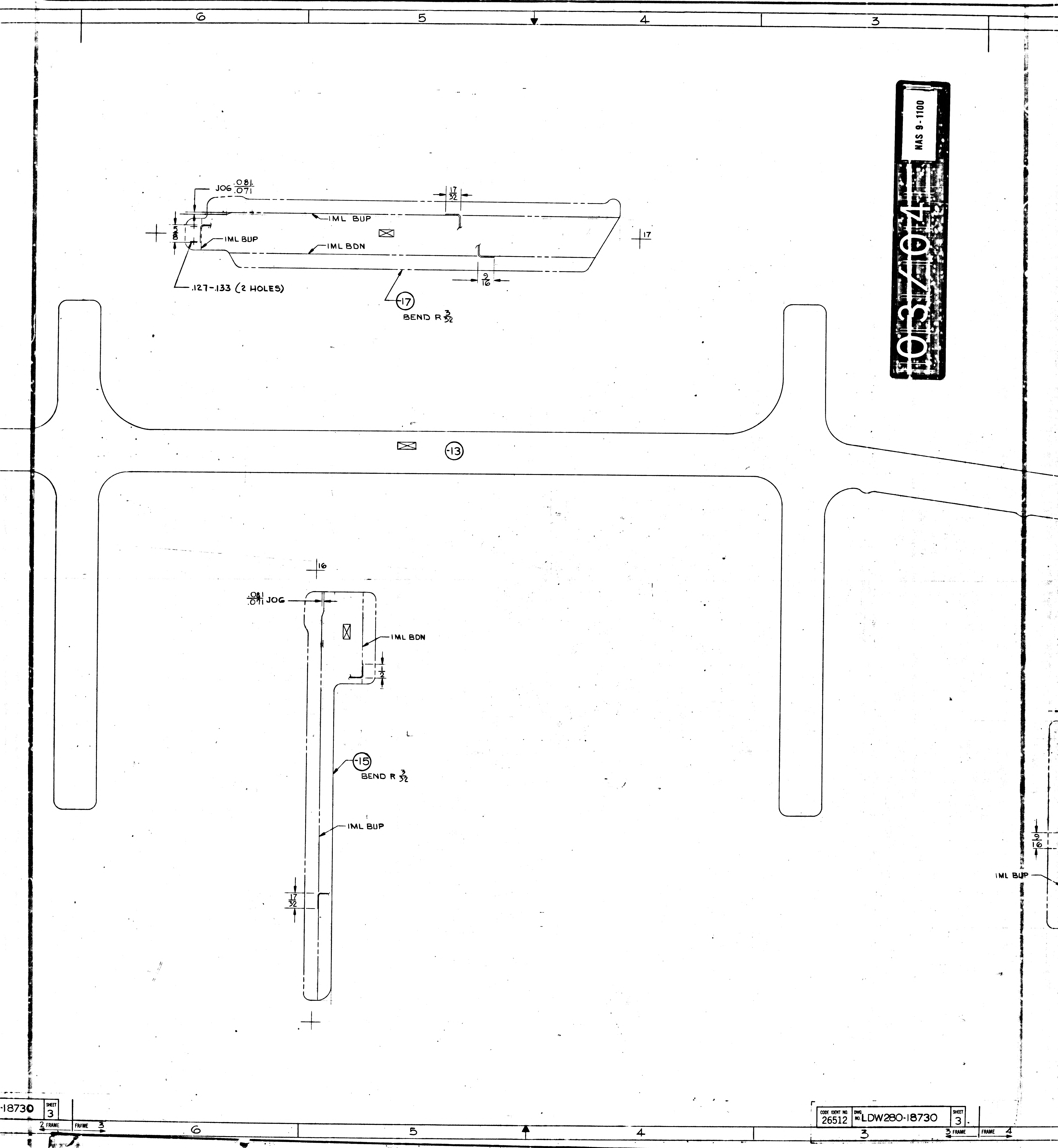
SHEET 3

2 FRAME

FRAME 3

02/04

NAS 9-1100



6
5
4
3
JOG .081/.071
17/32
IML BUP
IML BUP
IML BDN
.127-.133 (2 HOLES)
17
9/16
-17
BEND R 3/32
-13
16
.081/.071 JOG
IML BDN
1/2
-15
BEND R 3/32
IML BUP
17/32
9/16
IML BUP

03/04

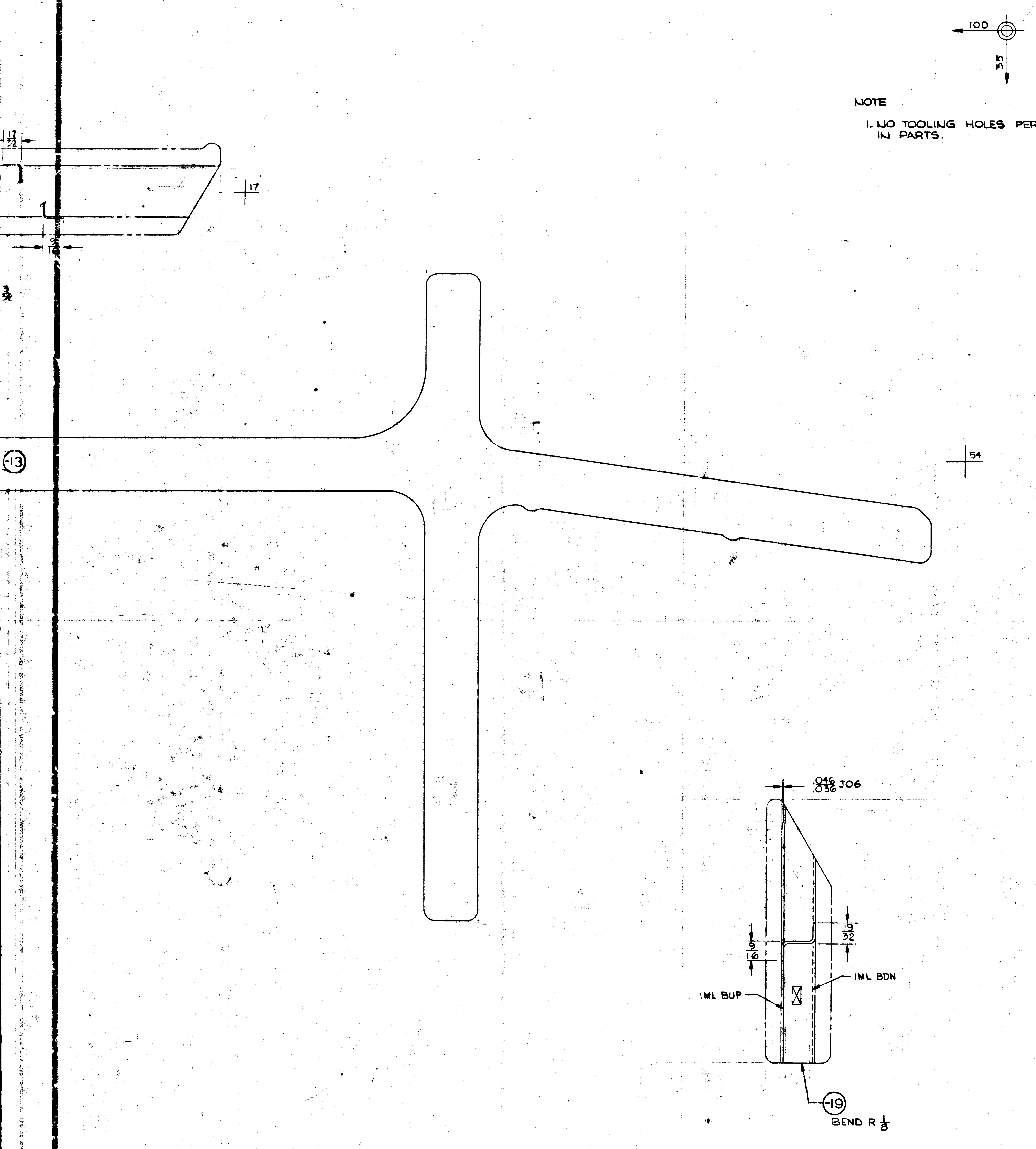
NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18730	3

-18730 SHEET 3

2 FRAME 3

FRAME 3 FRAME 4



100
35
$\frac{17}{32}$
17
(-13)
54
$\frac{.046}{.036}$ JOG
$\frac{9}{16}$
$\frac{19}{32}$
IML BUP
IML BDN
(-19)
BEND R $\frac{1}{8}$

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS.

04/04 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18730	3

3 FRAME FRAME 4

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
	26512	LDW280-18730	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 4FR K2

ENG 32.1 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18730
EO NO. A1
CONTROL INFO NO. LDW28088756

IN MB, FID & BIM CREATE -21 IDENTICAL TO -17 EXCEPT MAKE GAGE .040 WAS .032 FOR-21 N/A LDW280-6D521 EFF: LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR11(460) 1 REQD/MOD.

IN MB, BIM & FID REMOVE -17

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 51 Pg 4

REASON FOR EO: LOAD INCREASE IN UPPER DECK CUTOUT FRAME STIFFENERS

DESCRIPTION OF EO: ADDED -21, REMOVED -17

GAEC EO RELEASE: SAB 8-21 8-25-9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	LM-14 (44)
		LTA-11 (23)	
		LTA-3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-17

APPROVED BY					NM			
DATE	8-16-69			8/16/69	8/17/69		8/19/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: DOUBLER-D/S-UPPER DECK-TANK CENTER FRAME

DRAWING NO.: LDW280-18730

EO NO.: A1

CD R052269

ISSUED BY D.SHAPIRO/G.HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

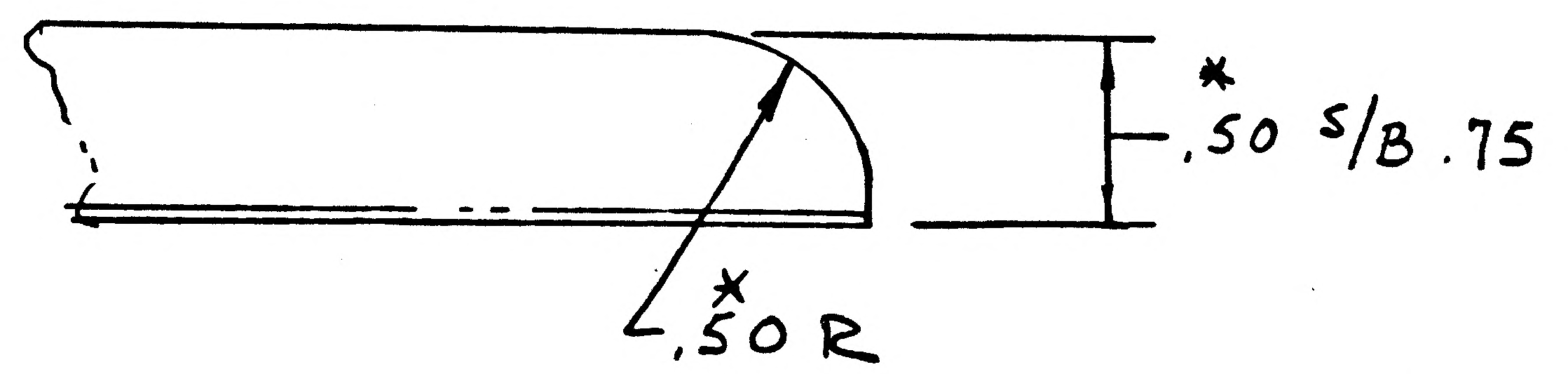
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18730
EO NO. A2
CONTROL INFO NO. LDW280B8964

IN F/D, B/M & MOD BLK

ADD -23 AND REMOVE -15

-23 IS IDENT. TO -15 EXCEPT AS SHN!
(-23 N/A & QTY SAME AS -15)



* DIMENSIONS ARE REF ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 51 (5)

REASON FOR EO: TO PROVIDE FLANGE FOR FITH SHIELD

DESCRIPTION OF EO: IN F/D, B/M & MOD BLK
ADDED -23 -15
REMOVED -15

GAEC/EO RELEASE: 9-29 9/30/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU	14 (44)
LM		LTA3R/1 (460)	LTA 11 (23)

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY				NM			
✓			✓	DATE	9/26/69			9-25-69	9-26-69		9/24
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER D/S-LH & FWD UP DK - PROP-TANK	LDW280-18730	A2

CDR 10-03-69
ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

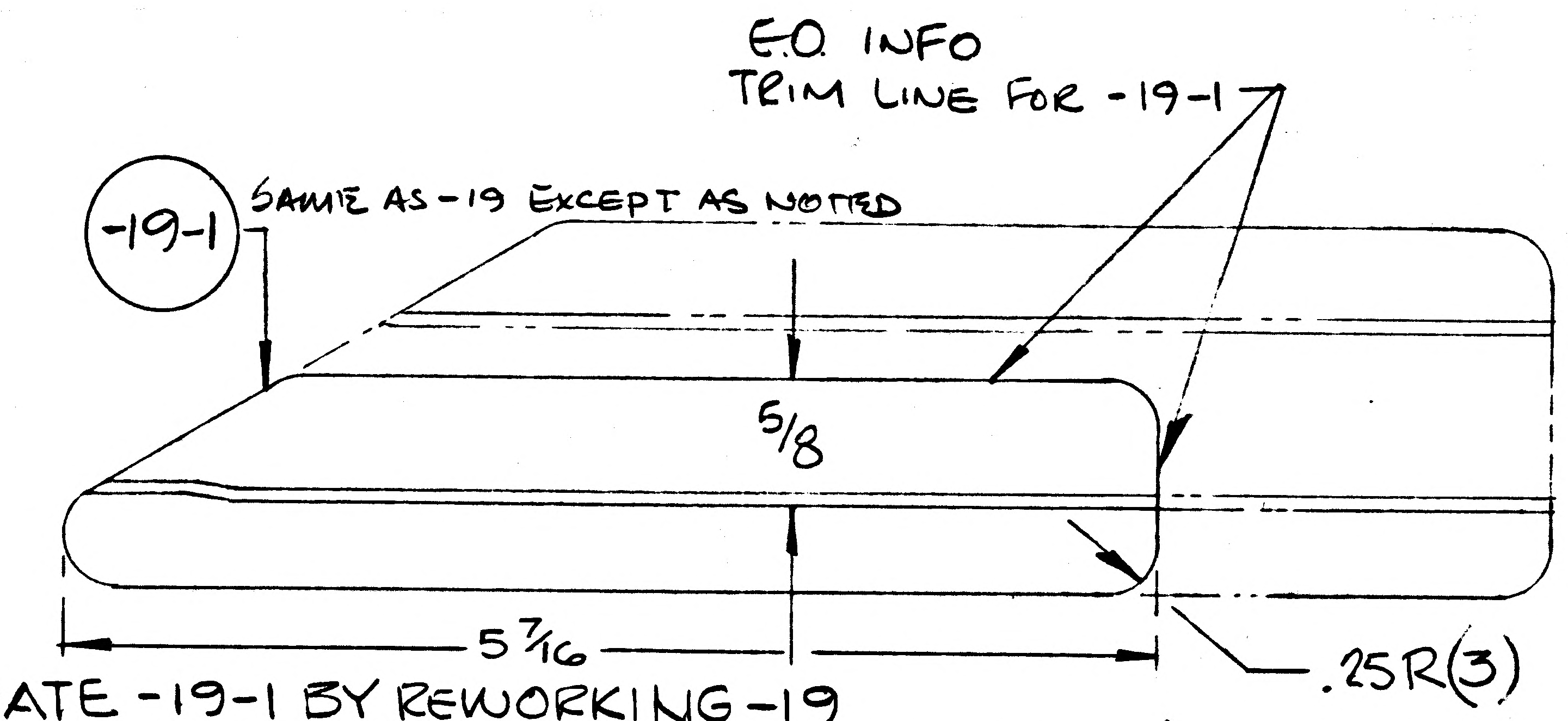
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18730
EO NO. A3
CONTROL INFO NO. LDW 280 B8971



CREATE -19-1 BY REWORKING -19
-19-1 EFF LM10(40) THRU LM14(44), LTA-3DR/1(460) & LTA-11(23) 1/MOD N/A LDW280-60522
DIMS FOR EO INFO ONLY REMOVE -19

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 52 (5)

REASON FOR EO: BATTERY RELOCATED TO -2 END BULKHEAD.

DESCRIPTION OF EO: ADDED -19-1
REMOVED -19

GAEC EO RELEASE: SWB 10/25/69; 10/27/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM10(40) THRU LM14(44)	
		LTA-3DR/1(460) LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK -19 SCRAP

APPROVED BY	ZDR				WJH			
DATE	10/23/69			10-21-69	10/24/69		10/24/69	10/25/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~

PRIORITY: C
DRAWING TITLE: DOUBLER~DESCENT STAGE~LH & FWD UPPER DECK PROP TANK CUTOUT FRAME
DRAWING NO.: LDW 280-18730
EO NO.: A3

CDR 11/30/69
ISSUED BY G. CHAN/G. HANSMANN X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

NAS 9-1100

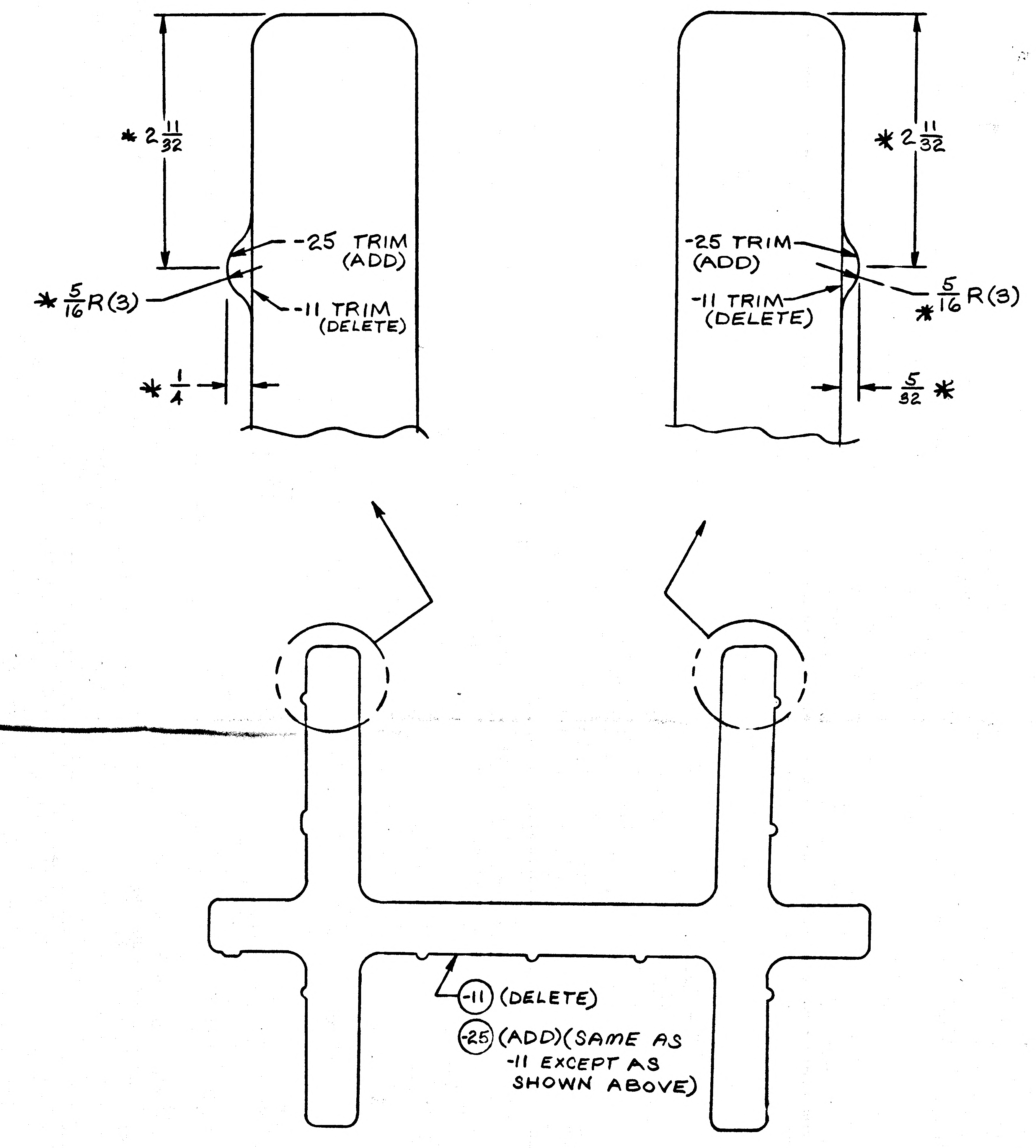
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18730 EO NO. A4
CONTROL INFO NO. LM-2-5659



$*2\frac{11}{32}$
-25 TRIM (ADD)
$*\frac{5}{16}R(3)$
-11 TRIM (DELETE)
$*\frac{1}{4}$
$*2\frac{11}{32}$
-25 TRIM (ADD)
$\frac{5}{16}R(3)*$
-11 TRIM (DELETE)
$\frac{5}{32}*$
-11 (DELETE)
-25 (ADD)(SAME AS -11 EXCEPT AS SHOWN ABOVE)

IN FLD/DWG, B/M & MOD/BLK ADD -25 DOUBLER (-25 REPLACES & IS IDENTICAL TO -11 EXCEPT AS SHOWN)
SCRAP -11

∗ TO BE LOFTED

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 3890 CCA 2205

REASON FOR EO: TABS REQUIRED FOR FASTENER EDGE DISTANCE ON NEXT ASSY LDW280-60521 DECK INSTL

DESCRIPTION OF EO: IN FLD/DWG, B/M & MOD/BLK CREATED -25, REMOVED -11

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	
		LTA-11 (23)	
		LTA-5DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD 0

DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					KC			
DATE	11/3/69			11-3-69	10/30/69	10/30/69	11/3/69	10/31/69
	VDI							

PRIORITY: C

DRAWING TITLE: DOUBLER ~ D/S ~ L.H. & FWD UPPER DECK PROP. TANK CUTOUT-FRAME

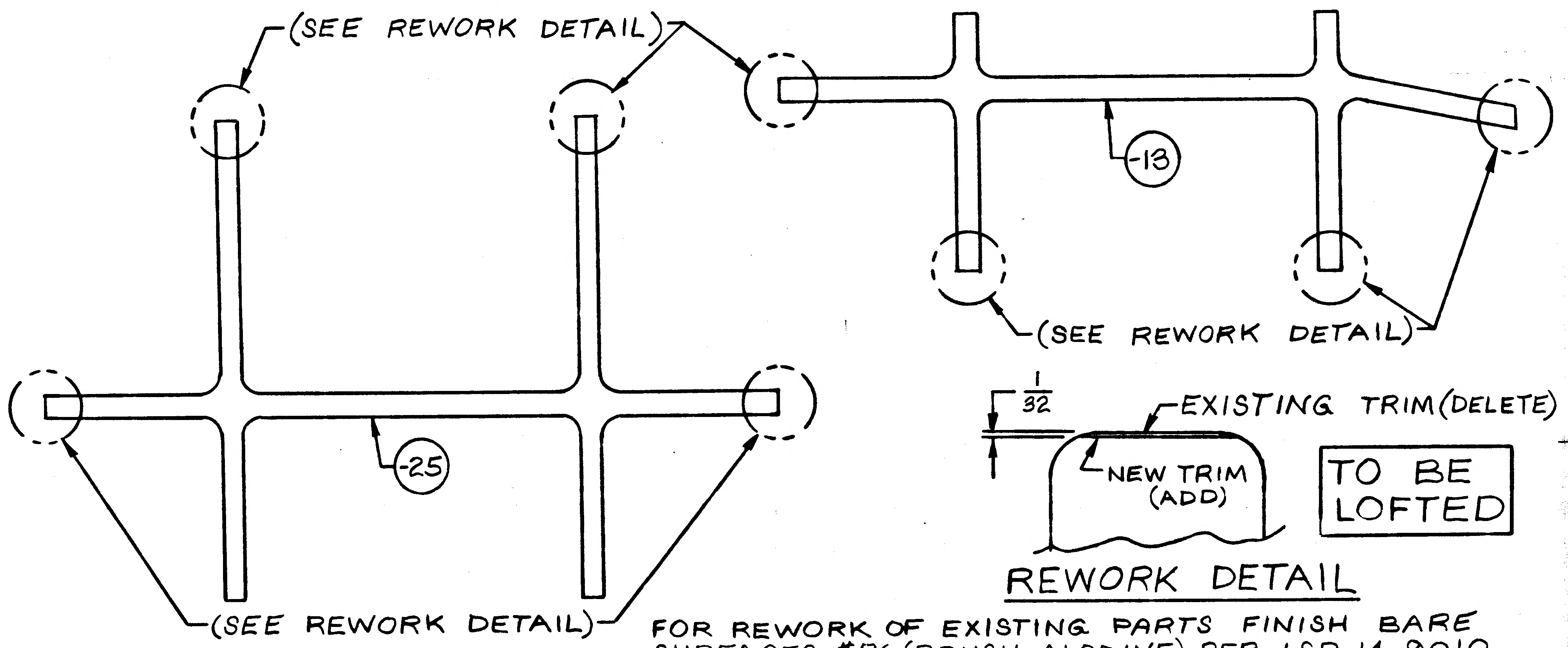
DRAWING NO. LDW280-18730 EO NO. A4

ISSUED BY LIAISON J. MALONEY 10/29/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18730 | EO NO. A5
CONTROL INFO NO. LM-2-5670


(SEE REWORK DETAIL)
-13
(SEE REWORK DETAIL)
-25
(SEE REWORK DETAIL)
1/32
EXISTING TRIM (DELETE)
NEW TRIM (ADD)
TO BE LOFTED
REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #76 (BRUSH ALODINE) PER LSP-14-9010

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 C'A2205 (2)

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSEMBLY

DESCRIPTION OF EO: IN FLD/DWG FOR -13 & -25 REVISED TRIM

R | GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44) LTA-11 (23) LTA-3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	FDL			RH	KC			
DATE	11/12/69			11/12/69	11/4/69	11-4-69	11/15/69	11/5/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER ~ D/S ~ L.H. & FWD UPPER DECK PROPELLANT TANK CUTOUT	LDW280-18730	A5

ISSUED BY LIAISON J. MALONEY 11/3/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

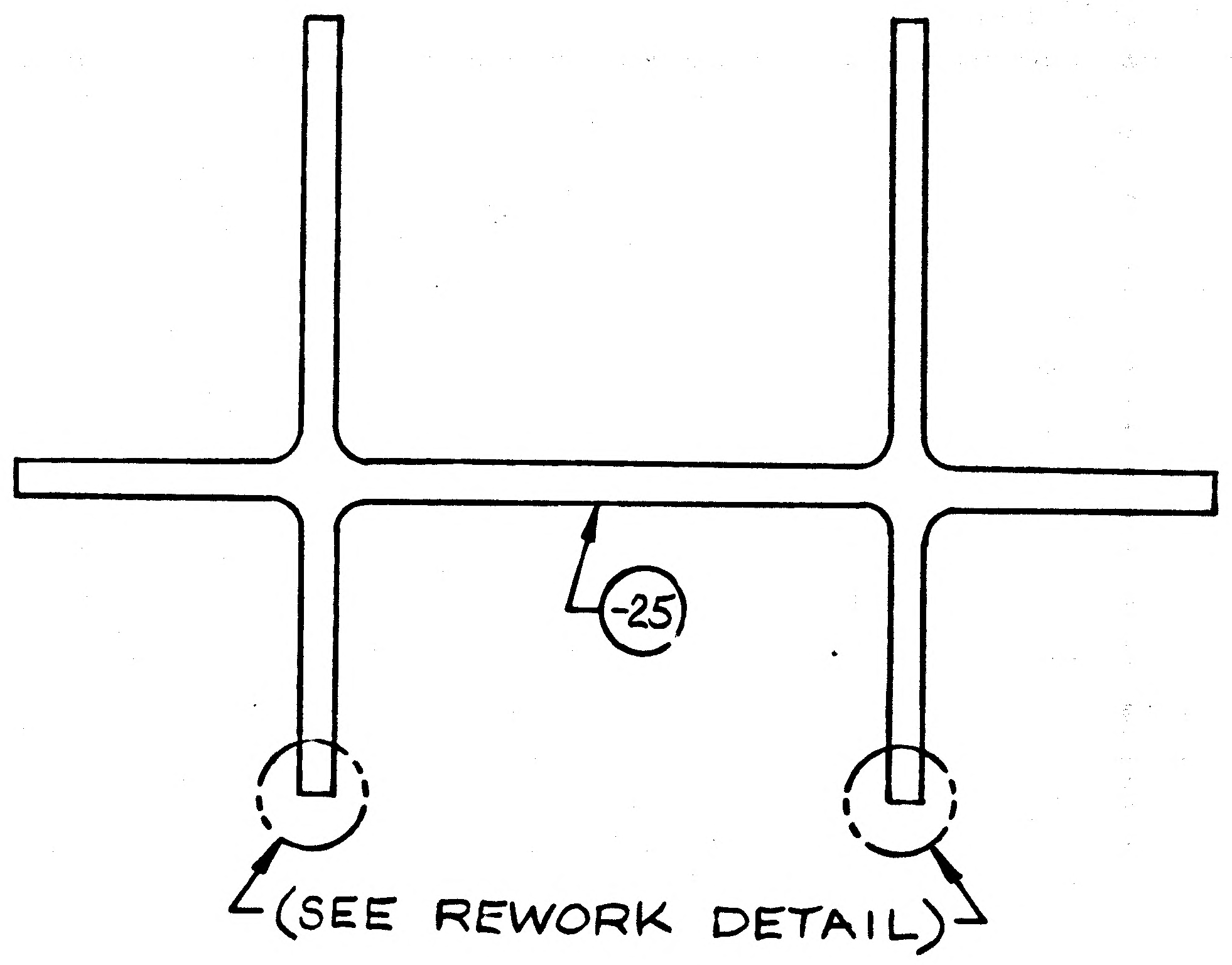
ENG 32.1 REV 3-65

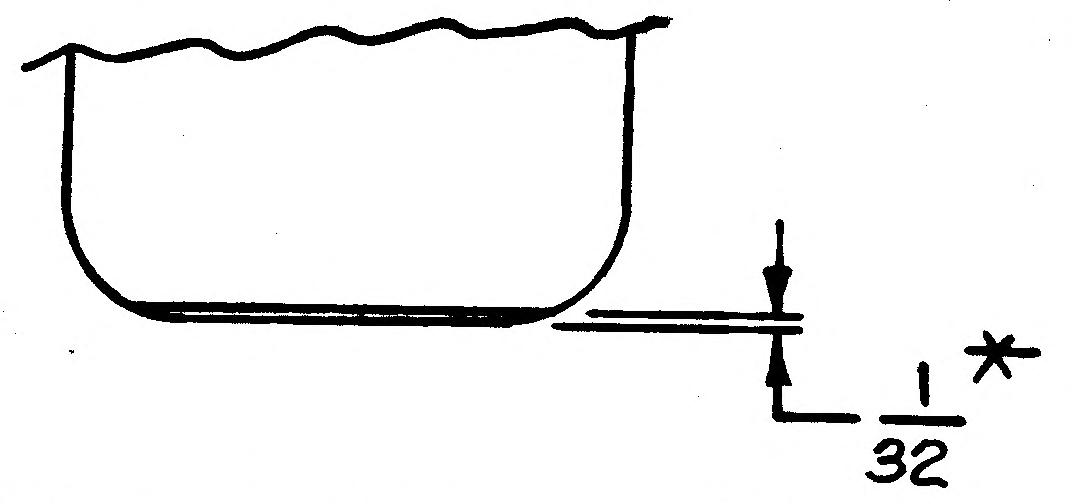
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18730	EO NO. A6
CONTROL INFO NO. LM-2-6242	





REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #76(ALODINE) PER LSP14-9010.

* DIMENSION IS FOR EO PURPOSES ONLY. DO NOT INCORPORATE ON DRAWING TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3890

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSY

DESCRIPTION OF EO: IN FLD/DWG FOR -25 REVISED TRIM 1/32

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-12(42)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY					KC	KC		
DATE	6-11-70			6/11/70	6/8/70	6/8/70	6-11-70	6/9/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER~D/S~L.H. & FWD UPPER DECK PROPELLANT TANK CUTOUT	LDW280-18730	A6

ISSUED BY LIAISON J. MALONEY 6/8/70 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18731

PART NO. LDW280-18731-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA3DR/1(460)	4
LM	LDW280-60523	LTA-11(23)	4
LM	LDW280-60523	LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
	LDW280-60523	LM-10(40)	4
	LDW280-60522	LTA3DR/1(460)	2
	LDW280-60522	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60522	LM-10(40)	2
	LDW280-60522	LTA-11(23)	2
	LDW280-60520	LTA3DR/1(460)	3
	LDW280-60520	LTA-11(23)	3
	LDW280-60520	LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
LM	LDW280-60520	LM-10(40)	3

LDW280-18731-19 (CONTINUED)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	3
		LTA-11(23)	3
		LM-14(44)	3
		LM-13(43)	?
		LM-12(42)	3
		LM-11(41)	3
LM	LDW280-60521	LM-10(40)	3

PART NO. LDW280-18731-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	1
LM	LDW280-60521	LTA-11(23)	1
LM	LDW280-60521	LM-14(44)	1
LM	LDW280-60521	LM-13(43)	1
LM	LDW280-60521	LM-12(42)	1
	LDW280-60521	LM-11(41)	1
	LDW280-60521	LM-10(40)	1
	LDW280-60520	LTA3DR/1(460)	1
	LDW280-60520	LTA-11(23)	1
	LDW280-60520	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18731-11 & -13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA3DR/1(460)	1 EA
LM	LDW280-60520	LTA-11(23	1 EA
LM	LDW280-60520	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60520	LM-10(40)	1 EA

WORK PACKAGE FUNCTION NO,110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. 207
JK(001)
ME-16 8/2/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 CCA2205
ECP A120

CONTRACT NO. NAS-9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY MASONE 6-17-69
LAYOUT BY CHAN SC. LANG 9A SHAPIRO DS
CHECKED BY J. D. COBB 7/23/69
GR LEADER 7-29-69
VEH DES INT 7-29-69
STRUCT
STRUCT NM 7-31-69
PROJ ENGR 8/1/69
REL GROUP 8-2-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE - UPPER DECK
PROPELLANT TANK CUTOUT ~ FRAME

SIZE B
CODE IDENT NO. 26512
LDW280-18731
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 8-25-69

01

NAS 9-1100

LDW280-18731

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	2
		LTA-11(23)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60521	LM-10(40)	2

PART NO. LDW 280-18731-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA3DR/1(460)	2
LM	LDW280-60523	LTA-11(23)	2
LM	LDW280-60523	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60523	LM-10(40)	2
	LDW 280-60522	LTA3DR/1(460)	2
	LDW280-60522	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60522	LM-10(40)	2
	LDW280-60522	LTA-11(23)	2
	LDW280-60520	LTA3DR/1(460)	2
	LDW280-60520	LTA-11(23)	2
	LDW280-60520	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60520	LM-10(40)	2

PART NO. LDW280-18731-15 (CONTINUED)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

~~SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH~~

SHEET
REV
SHEET
REV
SHEET
REV

~~LAST SECT LTR USED~~
~~LAST DASH NO. USED~~
~~GRUMMAN REL INFO~~
~~PRIM NO.~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

~~ORIG DWG AUTH~~
~~DETAIL SPEC REQUIREMENT~~
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

LINE ITEM
DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18731
0
SCALE NONE
SHEET 1.01 OF

ENG 77.1 12-65

0 1

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18731-19	E	SPLICE PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.071 x 2 x 6	NONE	88	6A
		-17		SPLICE PLATE				.071 x 2 x 6			5A
		-15		SPLICE PLATE				.080 x 2 x 5			3A
		-13		DOUBLER				.080 x 19 x 53			5C
		LDW280-18731-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 x 34 x 53	NONE	88	11B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

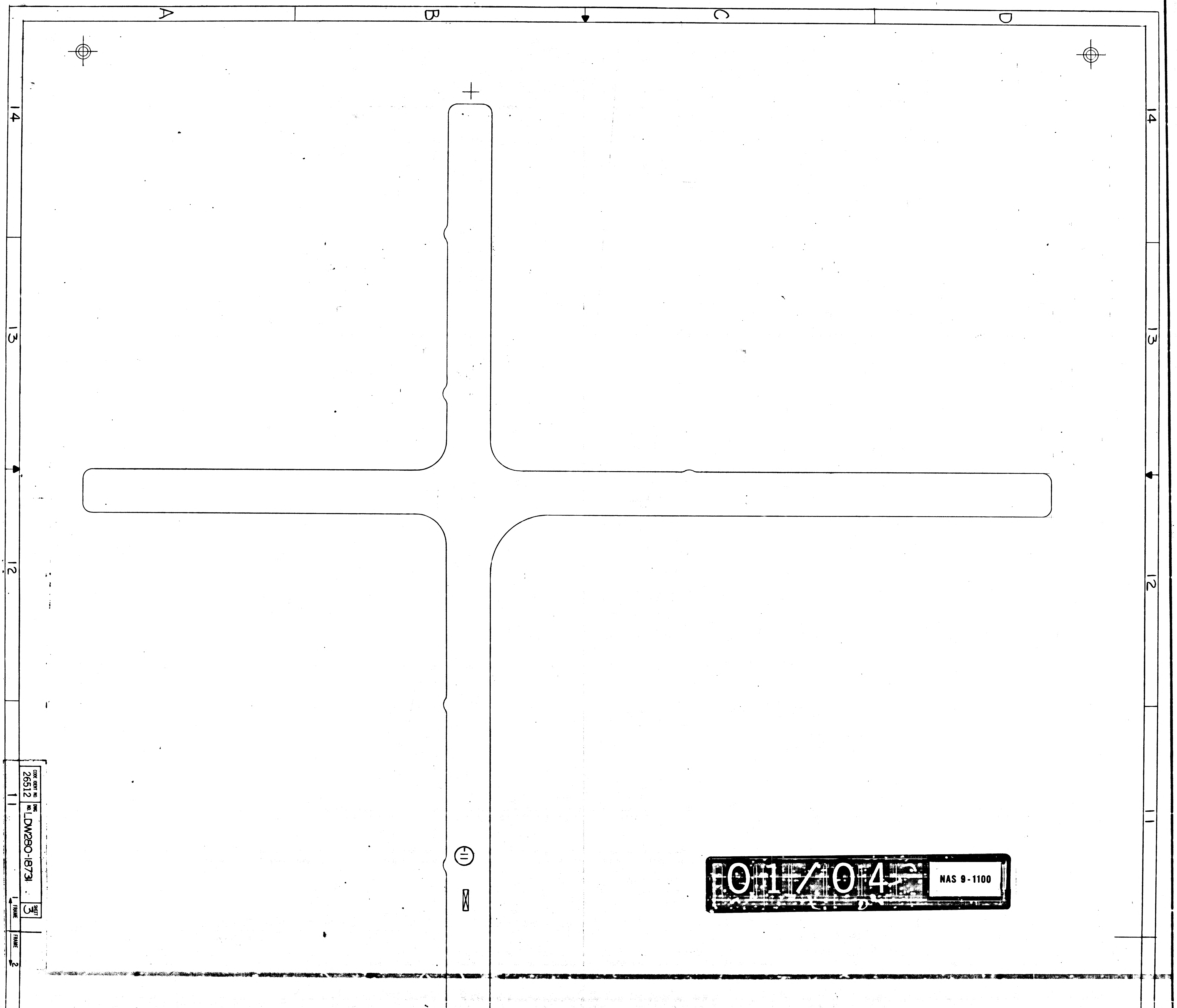
SIZE	CODE IDENT NO.	
B	26512	LDW280-18731

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


A
B
C
D
14
13
12
11
11

CODE IDENT NO. 26512

DWG NO. LDW280-18731

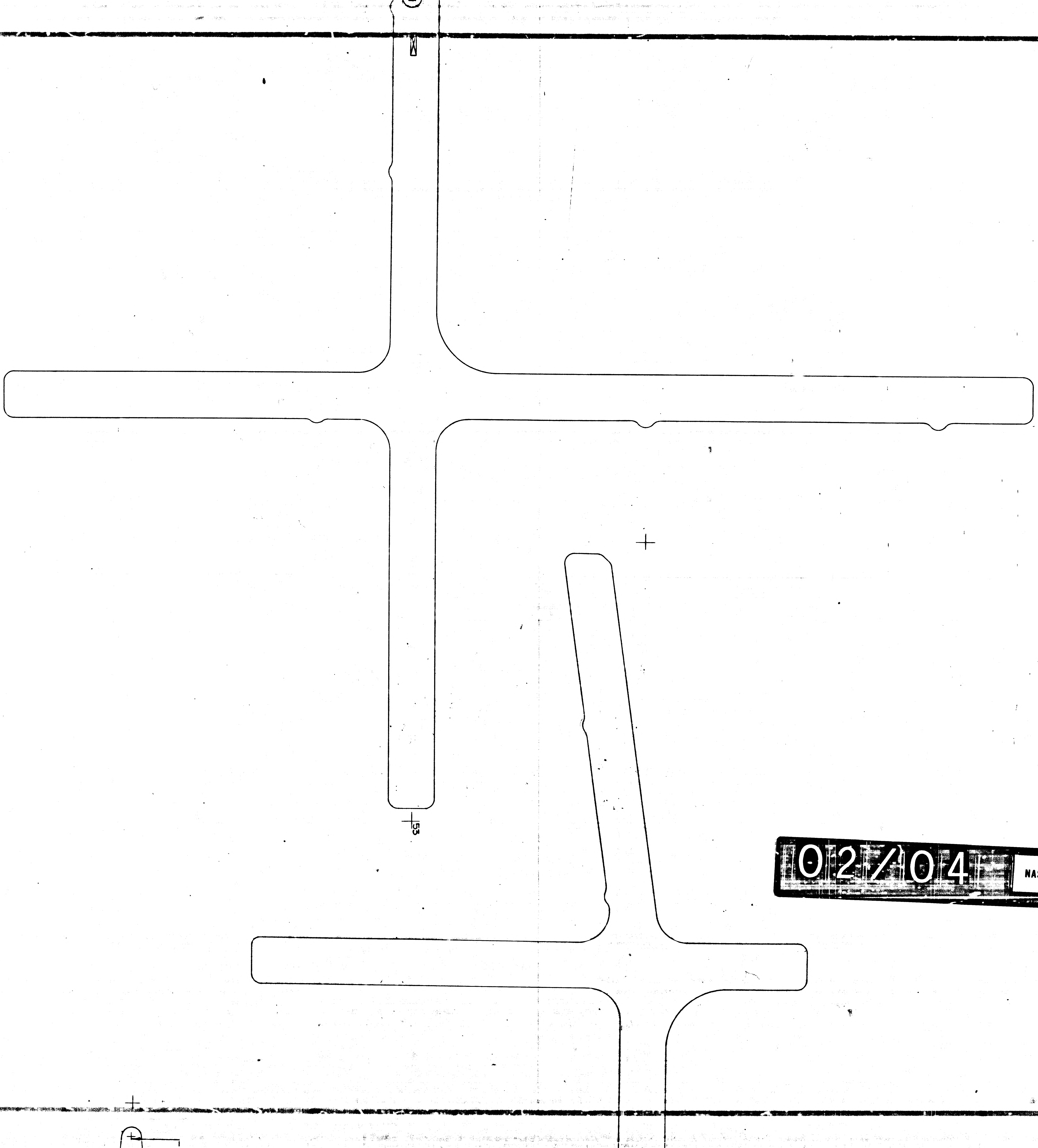
SHEET 3

FRAME 1

FRAME 2

01/04

NAS 9-1100



CODE IDENT NO. 26512

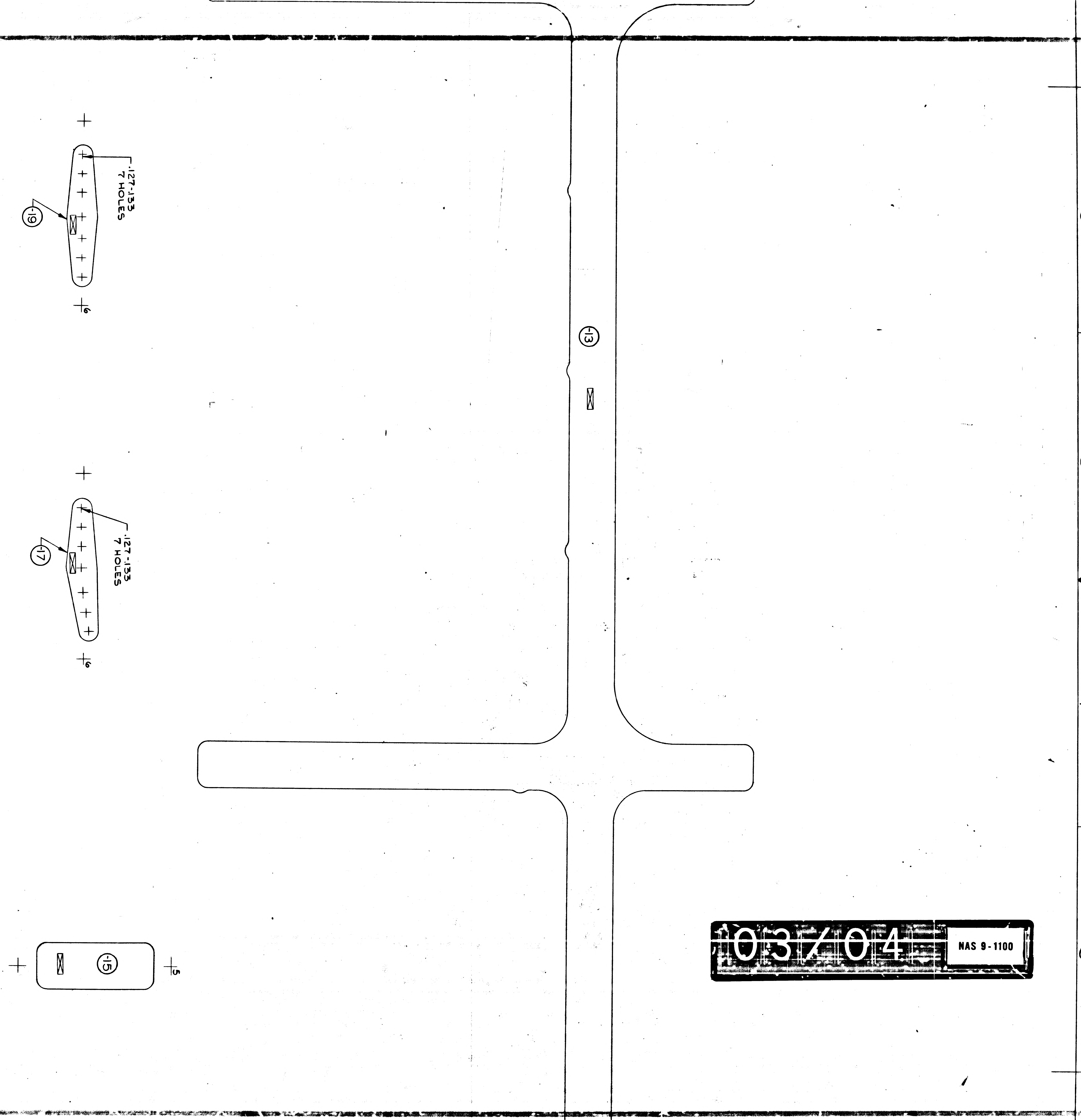
DWG NO. LDW280-18731

SHEET 3

FRAME 2

FRAME 3

02/04 NAS 9-1100


.127-.133
7 HOLES
-19
.127-.133
7 HOLES
-17
-13
-15
6
6
5

CODE IDENT NO 26512

DWG NO LDW280-18731

SHEET 3

FRAME 3

FRAME 4

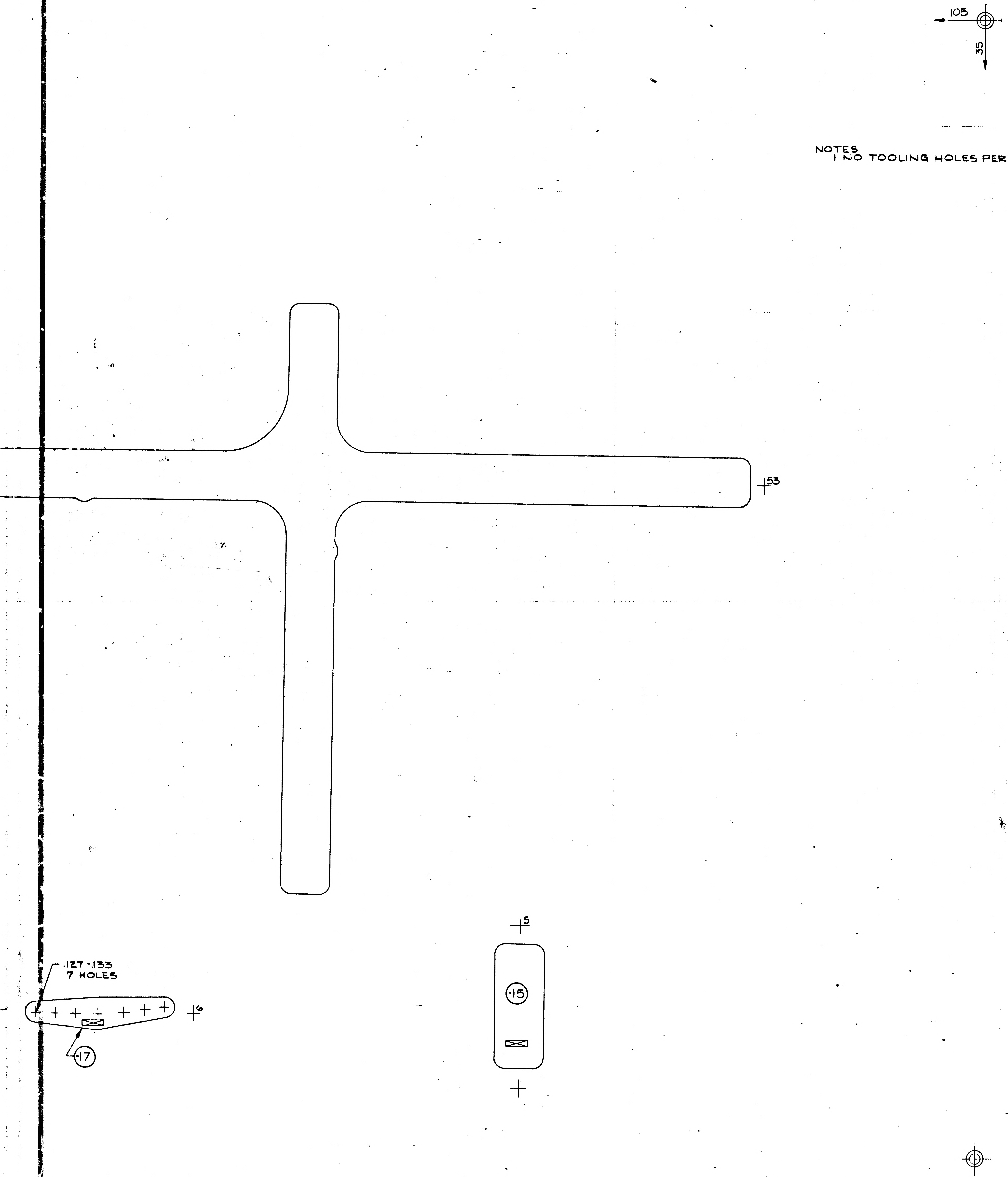
03/04

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ± 1/32	✓

DWG SIZE 40 x 112

NOTES
1 NO TOOLING HOLES PERMITTED IN PARTS.



04X04 NAS 9-1100

LDW280-18731

LDW280-18731

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-18731	3

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
K	26512	LDW280-18731
SCALE FULL		SHEET 3.00

FOR PHOTO | REPRODUCTION 4 FR 2K

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280 | EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*).	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700		A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747		A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 53 PG 3 & 4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. # 6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T.(70) EFF.

GAEC EO RELEASE: 9-12-69; VK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T.(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	9-3-69			8/21/69	9/8/69		9/11/69	9/18/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1670

ISSUED BY: G. HANSMANN W. LEIFER X87222 9-10-69
SECTION: VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

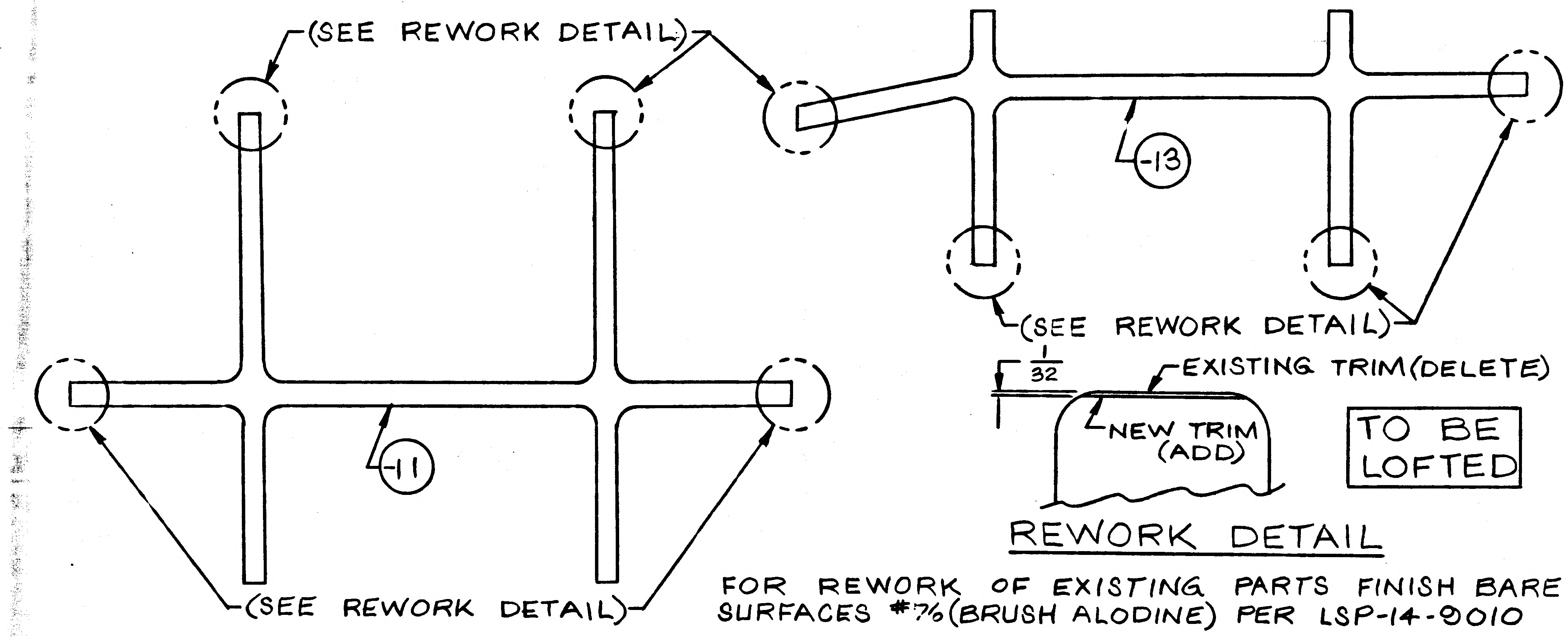
ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18731		EO NO. A2	
CONTROL INFO NO.	LM-2-5671		



(SEE REWORK DETAIL)
-13
(SEE REWORK DETAIL)
1/32
EXISTING TRIM (DELETE)
NEW TRIM (ADD)
TO BE LOFTED
REWORK DETAIL
-11
(SEE REWORK DETAIL)

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #7½ (BRUSH ALODINE) PER LSP-14-9010

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3890 CCA2205 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSEMBLY	IN FLD/DWG FOR -11 & -13 REVISED TRIM	R JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
		LM-14 (44) LTA-11 (23)	
		LTA-3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					KC			
✓		✓		DATE	11/12/69			11/12/69	11/4/69	11-4-69	11/5/69	11/5/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER~D/S~UPPER DECK PROPELLANT TANK CUTOUT~FRAME	LDW280-18731	A2

ISSUED BY LIAISON J. MALONEY 11/3/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280	EO NO. 1859
CONTROL INFO NO. LM-5-22301	

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG.	A5

01

NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890										
REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK280-11372			DESCRIPTION OF EO: ON -*, QTY ■ REQ'D/VEHICLE WAS ▲										GAEC EO RELEASE
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		DVT (70)					DATE	3-10-70 VDI			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
				PRIORITY: C	DRAWING TITLE: NOTED						DRAWING NO.: LEO-280			EO NO.: 1859	

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

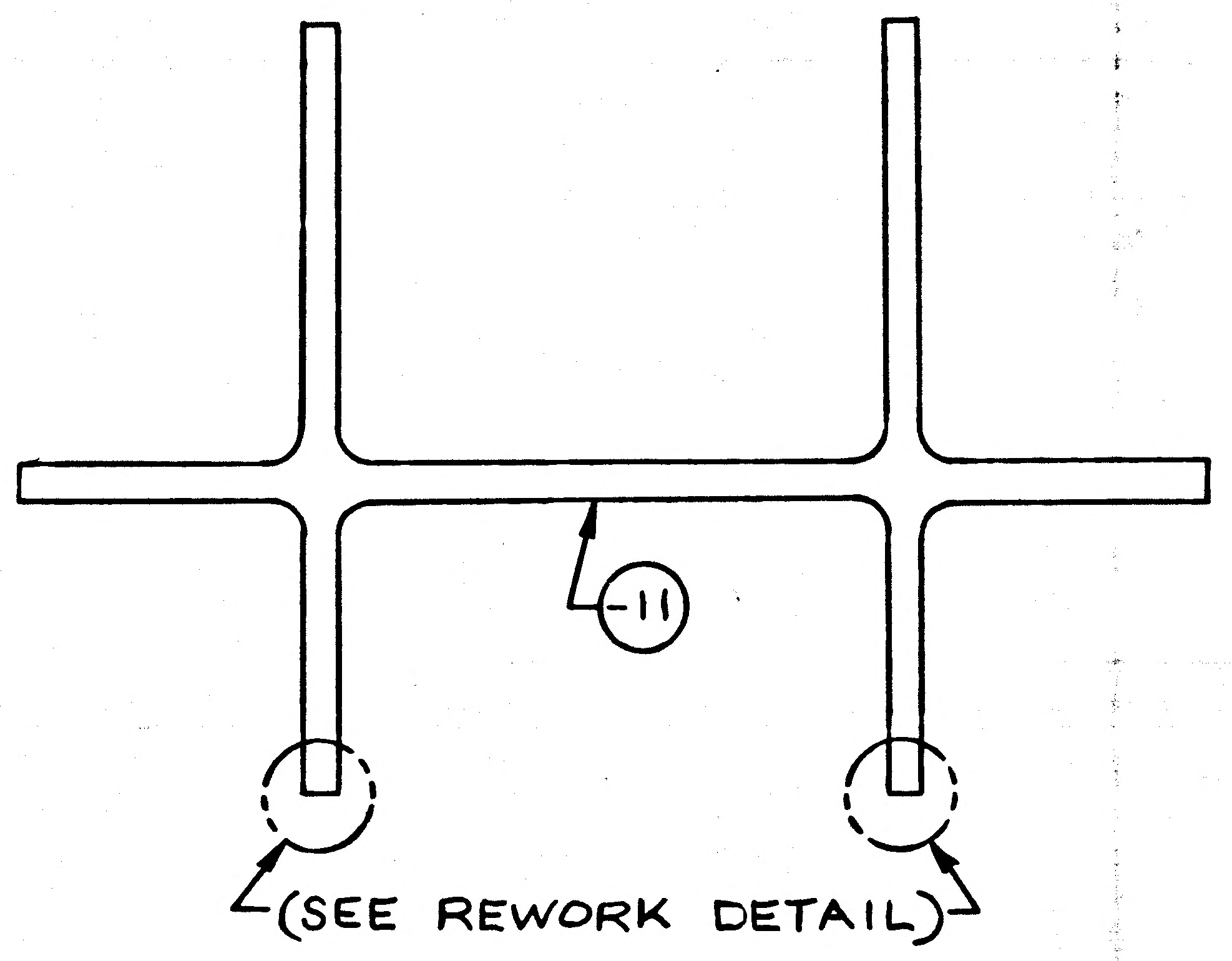
GRUMMAN AEROSPACE CORPORATION

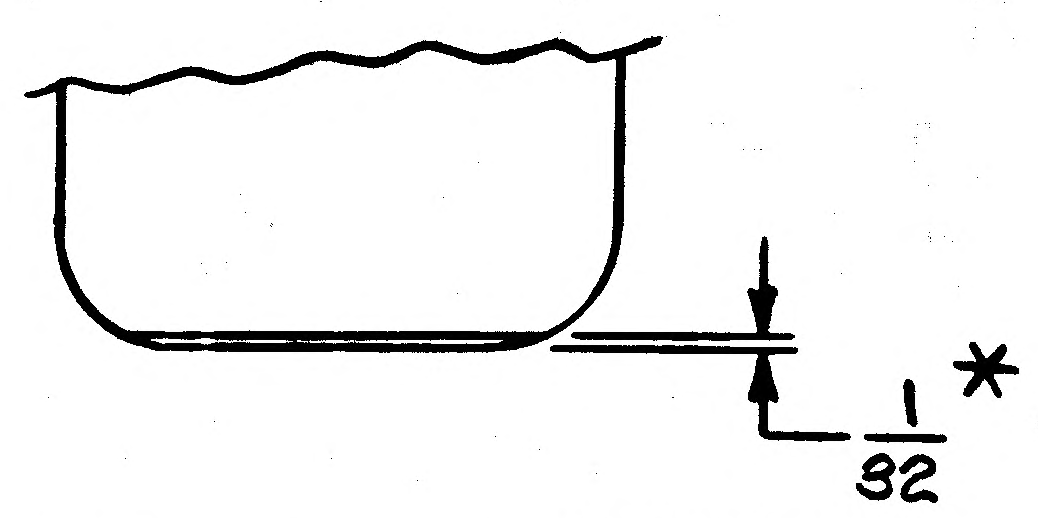
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18731 | EO NO. A4

CONTROL INFO NO. LM-2-6243





REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES *76 (ALODINE) PER LSP14-9010.

* DIMENSION IS FOR EO PURPOSES ONLY. DO NOT INCORPORATE ON DRAWING TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSY

DESCRIPTION OF EO: IN FLD/DWG FOR -11 REVISED TRIM 1/32

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-12(42)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					KC	KC		
DATE	6-11-70			6/11/70	6/8/70	6/8/70	6-11-70	6/9/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER~D/S~UPPER DECK PROPELLANT TANK CUTOUT~FRAME	LDW280-18731	A4

ISSUED BY LIAISON J. MALONEY 6/8/70 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18732

LDW280-18732-12

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
		LM-10(40)	2
		LTA-11(23)	2
LM	LDW280-60520	LTA-3DR/1(460)	2

PART NO. LDW280-18732-18

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LTA-11(23)	1
LM	LDW280-60521	LTA-3DR/1(460)	1

PART NO. LDW280-18732-15 & -16

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LTA-11(23)	1 EA
	LDW280-60521	LTA-3DR/1(460)	1 EA
	LDW280-60520	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LTA-11(23)	1 EA
LM	LDW280-60520	LTA-3DR/1(460)	1 EA

PART NO. LDW280-18732-11, -13, -17 & -19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
		LM-10(40)	1 EA
		LTA-11(23)	1 EA
LM	LDW280-60520	LTA-3DR/1(460)	1 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16 8/2/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890-

ECP A120

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	HERB. SCHWETER 6/18/69
LAYOUT BY	G.CHAN 7/16/69
CHECKED BY	J.D. COBB 7-18-69
GR LEADER	G.W. Hamm 7/29/69
VEH DES INT	Thogerson 8-1-69
STRUCTURES	
STRUCTURES	N.M. 7-31-69
PROJ ENGR	8/1/69
REL GROUP	Botts 8-2-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ R.H. & L.H
UPPER DECK ~ PANEL STIFFENER

SIZE B

CODE IDENT NO. 26512

LDW280-18732

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-25-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18732-19	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.036 × 2 × 14	T6	88	
								-18						.032 × 2 × 14			
								-17						.032 × 2 × 14			
								-16						.040 × 2 × 7			
								-15		ANGLE				.040 × 2 × 7			
								-13		CLIP				.063 × 2 × 2			
								-12		ANGLE				.032 × 2 × 15			
								LDW280-18732-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.032 × 2 × 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18732

SCALE NONE

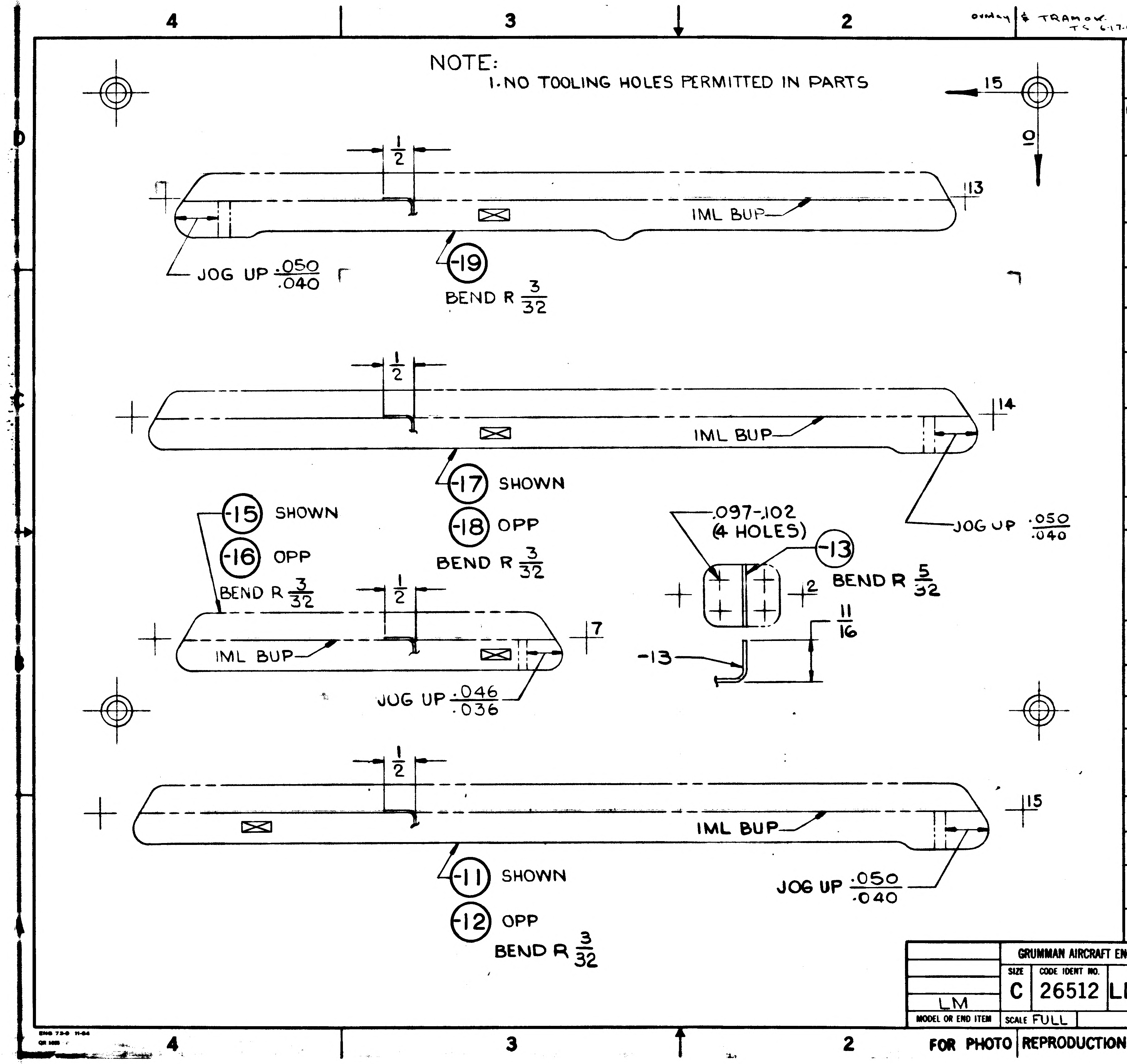
SHEET 2·00

ENG 77.2 7-65

01

NAS 9-1100

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS


4
3
2
1
D
C
B
A
15
10
1/2
IML BUP
-13
JOG UP .050/.040
-19
BEND R 3/32
-14
-17 SHOWN
-18 OPP
BEND R 3/32
JOG UP .050/.040
-15 SHOWN
-16 OPP
BEND R 3/32
IML BUP
-17
JOG UP .046/.036
.097-.102 (4 HOLES)
-13
BEND R 5/32
2
11/16
-13
-15
-11 SHOWN
-12 OPP
BEND R 3/32
JOG UP .050/.040

DIMM'L | & TRAMOK TS 6-17-67

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18732
	SCALE FULL		SHEET 3·00

LDW280-18732

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1730
CONTROL INFO NO. LDW280B8482

FOR DWGS & DASH NOS * LISTED BELOW REMOVE FROM B/M, F/D & M/B N/A LDW 280-60520 EFF. LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)

DRAWING	DASH NO *	DRAWING TITLE	CHANGE NO
LDW280-18732	-13*	SEE DRAWING	A1
LDW280-18748	-17*	SEE DRAWING	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 50 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REMOVE STIFFENERS TO ALLOW INSTL OF H₂O TANK SPRT STRUCT.	REMOVED (*). EFF LM-10(40) THRU LM-14(44) LTA-11(23) & LTA-3DR/1(460).	JK 10/17/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44) LTA-3DR/1(460) LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	FDR			RST	NM		DP	
DATE	10/15/69			10-15-69	10/16/69		10/16/69	10/17/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	1730

CDR 11/30/69
ISSUED BY G. CHAN/G. HANSMANN X86046 SECTION VDI GROUP NO. 355 PL 25

01

NAS 9-1100

LDW280-18733

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11 (23)	1 EA
↕	↕	LTA-3DR/1(460)	1 EA
		LM-14 (44)	1 EA
		LM-13(43)	1 EA
		LM-12 (42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA
PART NO. LDW 280-18733-11&-13		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED ~

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16 8/1/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/20

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 CCA220E

ECP A120

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	MURPHY CONROY 6-14-69
LAYOUT BY	J. LANG 7/22
CHECKED BY	H. HICKS 7-1-69
GR LEADER	7-23-69
VEH DES INT	
STRUCTURES	N.M.
STRUCTURES	7/25/69
PROJ ENGR	
REL GROUP	L. Marsh 7-31-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE ~ FWD UPPER DECK
PROPELLANT TANK CUTOUT ~ FRAME

SIZE B | CODE IDENT NO. 26512 | LDW280-18733

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-26-69

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18733-13	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080×19×50	NONE	88	B6
		LDW280-18733-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080×35×53	NONE	88	B7

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

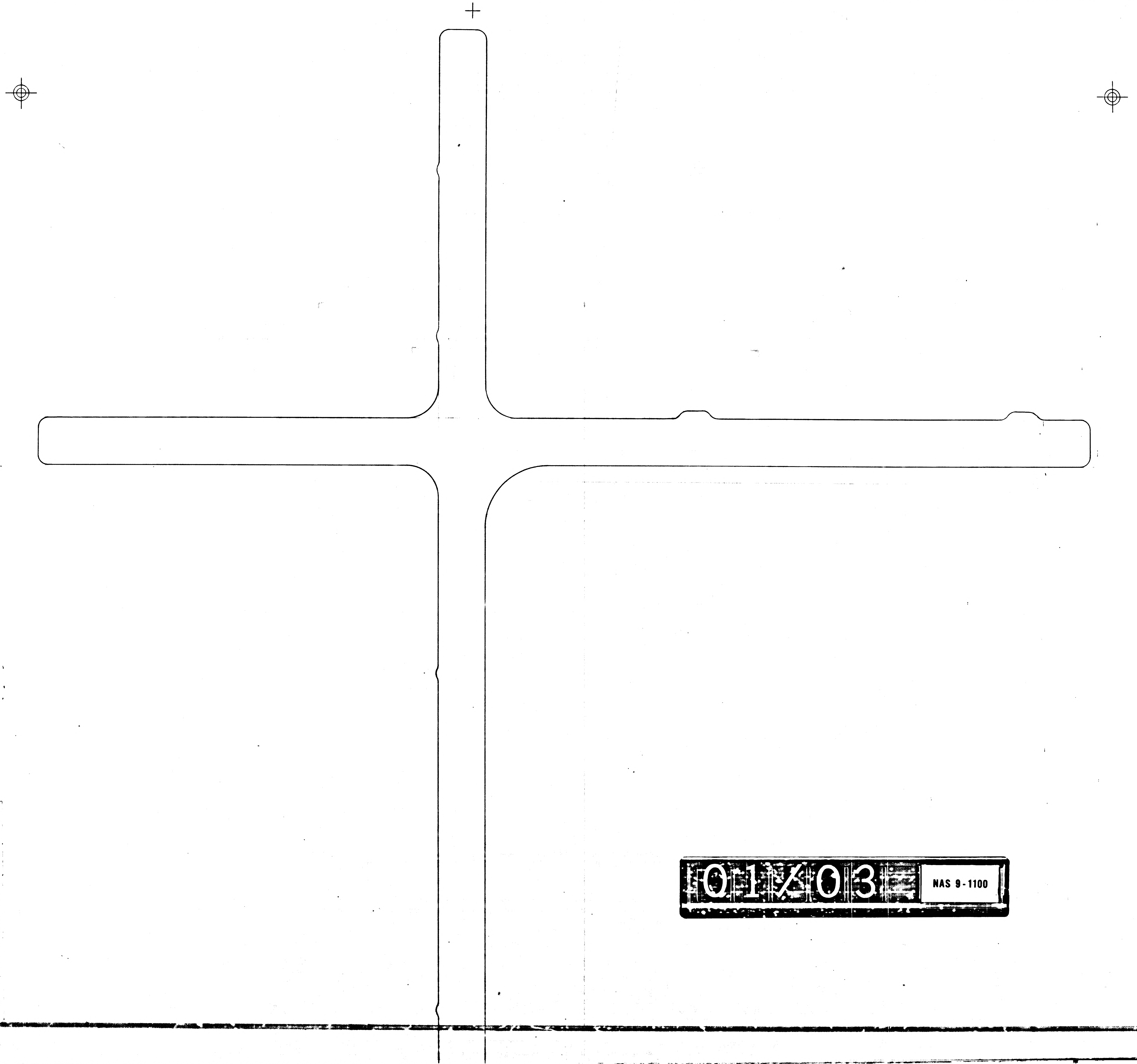
SIZE	CODE IDENT NO.	
B	26512	LDW280-18733

SCALE NONE SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100


A
B
C
D
12
11
10
9

CODE IDENT NO. 26512

DWG NO. LDW280-18733

SHEET 3

FRAME 1

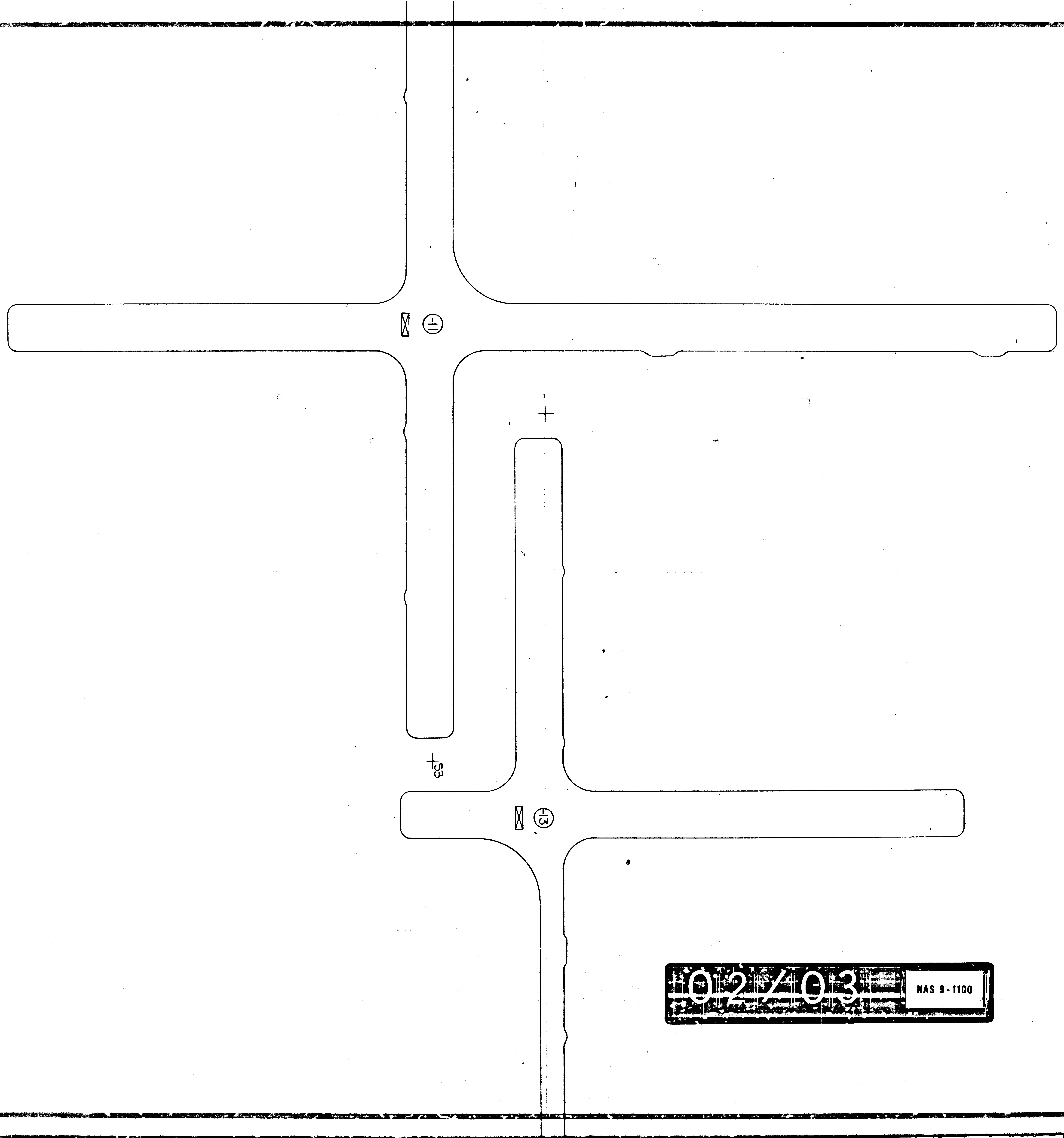
FRAME 2

01/03

NAS 9-1100

-18733 SHEET 3 FRAME 1

FRAME 2



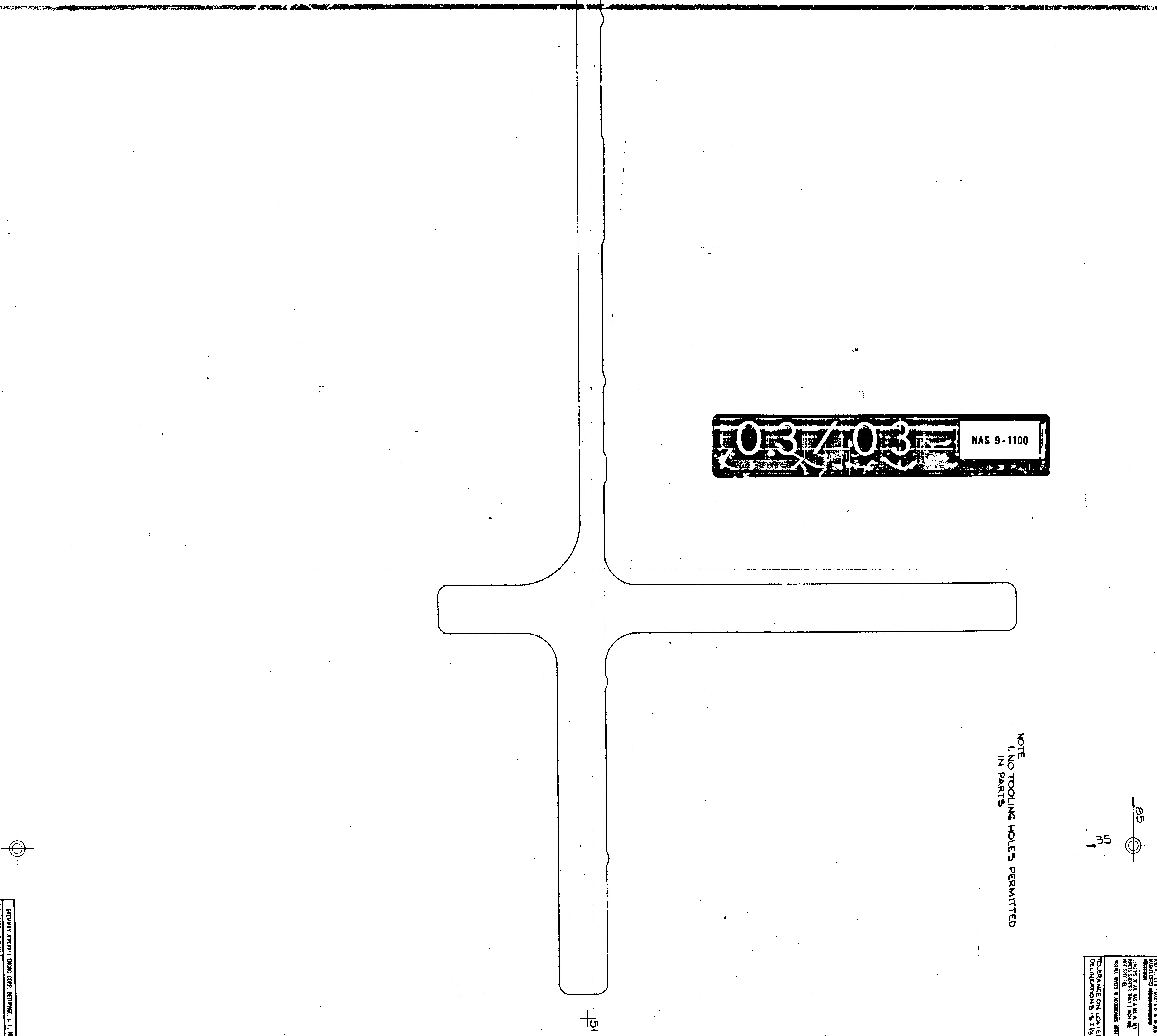
-11
-13
53
8
7
6
5

CODE IDENT NO. 26512 DWG NO. LDW280-18733 SHEET 3

FRAME 2

FRAME 3

02/03 NAS 9-1100



03/03

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

DWG SIZE 42 X 96

PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42 X 106) = 28 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 7 SQ FT

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO	
K	26512	LDW280-18733
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

A LDW280-18733 B LDW280-18733 C D

D-18733 SHEET 3

FRAME 2 FRAME 3

p

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

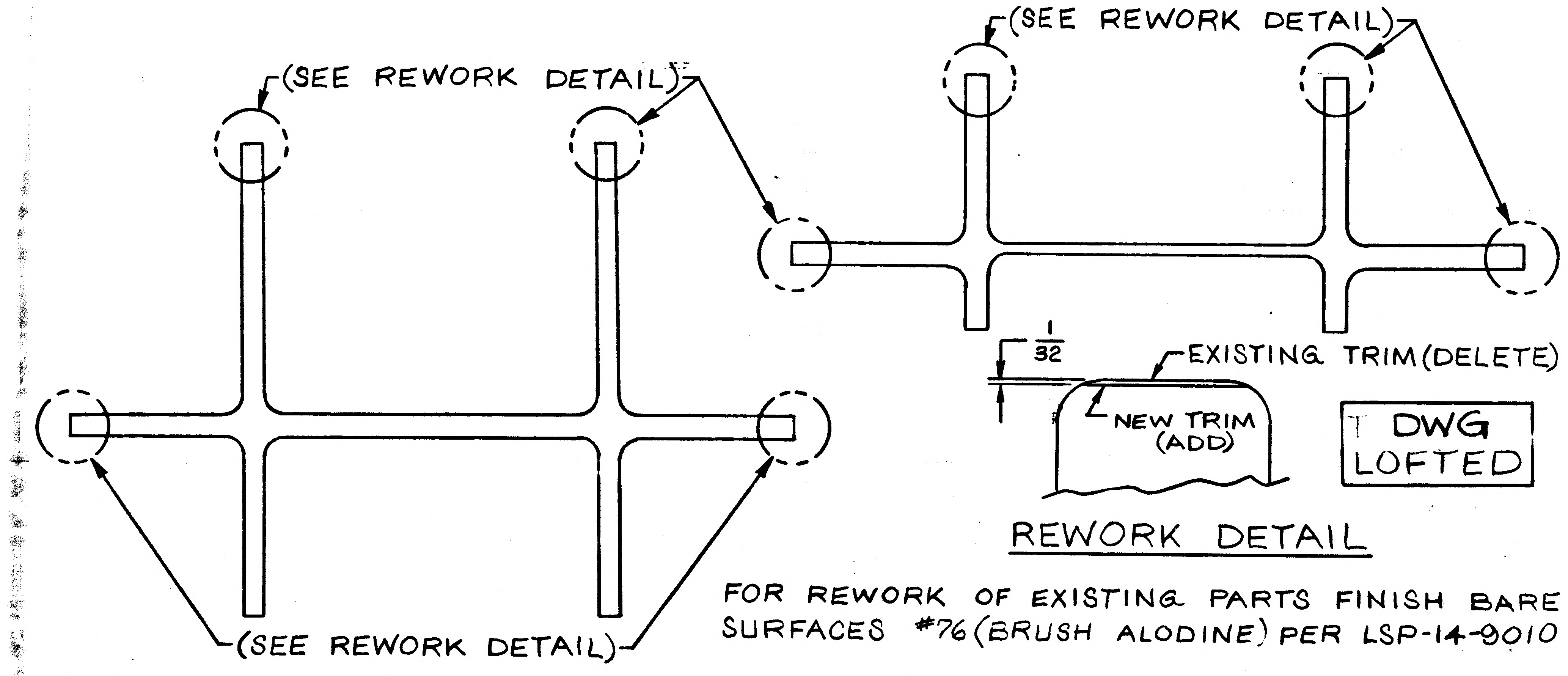
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18733

EO NO. A1

CONTROL INFO NO. LM-2-5672



DWG LOFTED

REWORK DETAIL

FOR REWORK OF EXISTING PARTS FINISH BARE SURFACES #76 (BRUSH ALODINE) PER LSP-14-9010

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD3890 CCA2205

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH CAPSTRIP AT NEXT ASSEMBLY

DESCRIPTION OF EO: IN FLD/DWG FOR -11 & -13 REVISED TRIM

R (2) GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44) LTA-11 (23) LTA-3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK ✓	SCRAP	APPROVED BY	F.D.L.				KC		
				DATE	11/12/69			11/12/69	11/4/69	11-4-69	11/13/69	11/15/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C

DRAWING TITLE: DOUBLER~D/S~FWD UPPER DECK PROPELLANT TANK CUTOUT~FRAME

DRAWING NO. LDW280-18733

EO NO. A1

ISSUED BY LIAISON J. MALONEY 11/4/69 X3604 SECTION V. D. I. GROUP NO. 335 PL 25

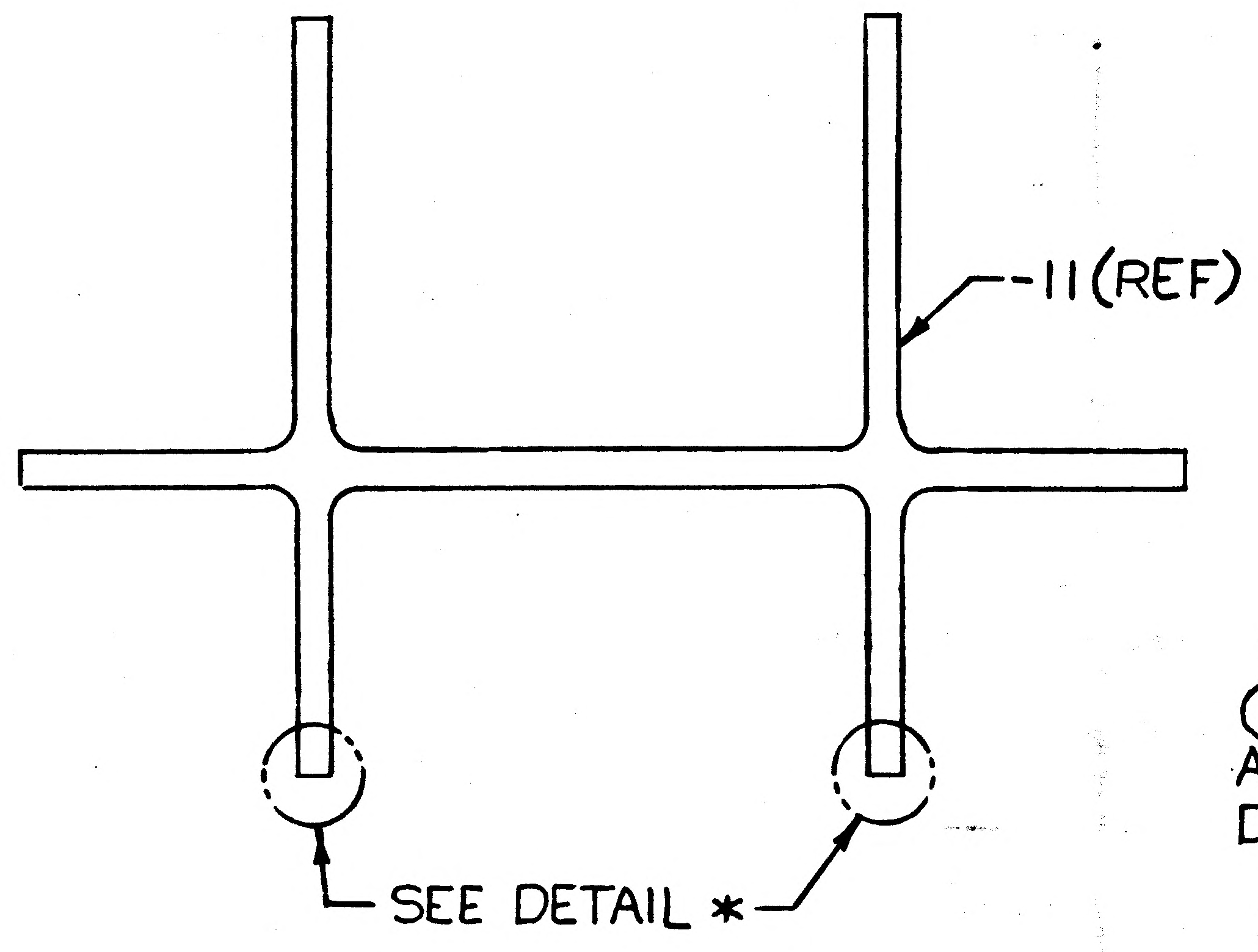
01

NAS 9-1100

ENG 32.1 REV 3-65

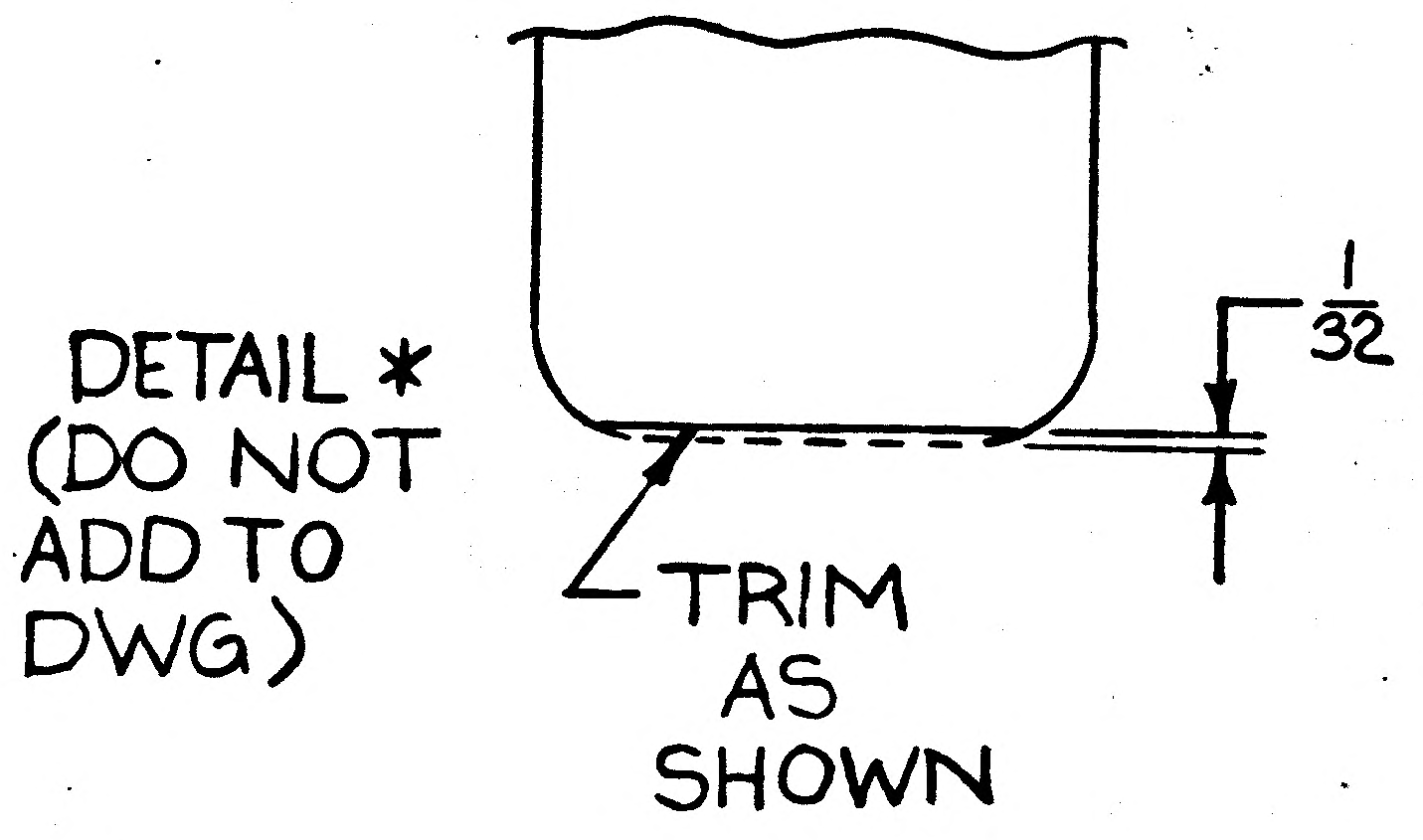
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18733		EO NO. A2	
CONTROL INFO NO. LM-2-6236			



IN F/D FOR -11

TRIM 1/32 MATL AS SHOWN. DO NOT ADD DIM - DWG IS LOFTED. FOR REWORK FINISH BARE SURFACES NO 76 PER LSP-14-9010.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 CCA 2205

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AVOID INTRF WITH CAPSTRIP ON NHA.	IN F/D FOR -11 ~~TR~~ REVISED TRIM. 1/32	

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-12 (42)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY	PJH				KC	KC		
				DATE	6-3-70			6/3/70	5/27/70	5/27/70	6/1/70	5/27/70
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	27 May 70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOUBLER ~ D/S FWD UPR DECK PROP TANK CUTOUT ~ FRAME	LDW280-18733	A2

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION Vehicle Design Integ GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18734

PART NO. LDW280-18734-15, -17 & -19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA3DR/1(460)	1 EA
		LTA-11(23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60520	LM-10(40)	1 EA

LDW280-18734-12 & 21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	1
LM	LDW280-60521	LTA-11(23)	1
LM	LDW280-60521	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1

PART NO. LDW280-18734-14

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	1
		LTA-11 (23)	1
		LM-14(44	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
	LDW280-60521	LM-10(40)	1
	LDW280-60520	LTA3DR/1(460)	2
		LTA-11(23)	2
		LM-14 (44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60520	LM-10(40)	2

PART NO. LDW280-18734-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1
		LTA3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
	LDW280-60521	LM-10(40)	1
	LDW280-60520	LTA-11(23)	1
		LTA3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18734-11 & 22

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA3DR/1(460)	1 EA
		LTA-11(23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
	LDW280-60521	LM-10(40)	1 EA
	LDW280-60520	LTA3DR/1(460)	1 EA
		LTA-11(23)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60520	LM-10(40)	1 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00										
REV											
SHEET	2.00										
REV											
SHEET	3.00										
REV											

LAST SECT LTR USED	—	GRUMMAN REL INFO			
LAST DASH NO. USED	-22	PRIM NO.	JK(001)		
		207	ME-16	8/2/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3890 PKG52	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	ED STONHAM		
LAYOUT BY	G. CHAN		
CHECKED BY	D. FASS 7-22-69		
GP LEADER	7-30-69		
VEH DES INT	7-30-69		
STRUCTURES		PROJ ENGR	8/1/69
STRUCTURES	N.M. 8-1-69	REL GROUP	Botte 8-2-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE ~ R.H. UPPER DECK ~ AMB. He TANK SUPT.

SIZE	CODE IDENT NO.		
B	26512	LDW280-18734	
SCALE	NONE	SHEET 1.00 OF 3	

ENG 77.1 12-65

CDR 8-26-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18734-22	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.032 x 2 x 12	T6	88	
		-21		STIFFENER				.032 x 2 x 12			
		19		ZEE				.032 x 3 x15			
		-17		ZEE				.032 x 3 x16			
		-15		STIFFENER				.036 x 2 x16			
		-14						.032 x 2 x16			
		-13						.032 x 2 x16			
		-12						.036 x 2 x12			
		LDW280-18734-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.036 x 2 x12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18734

SCALE NONE

SHEET 2.00

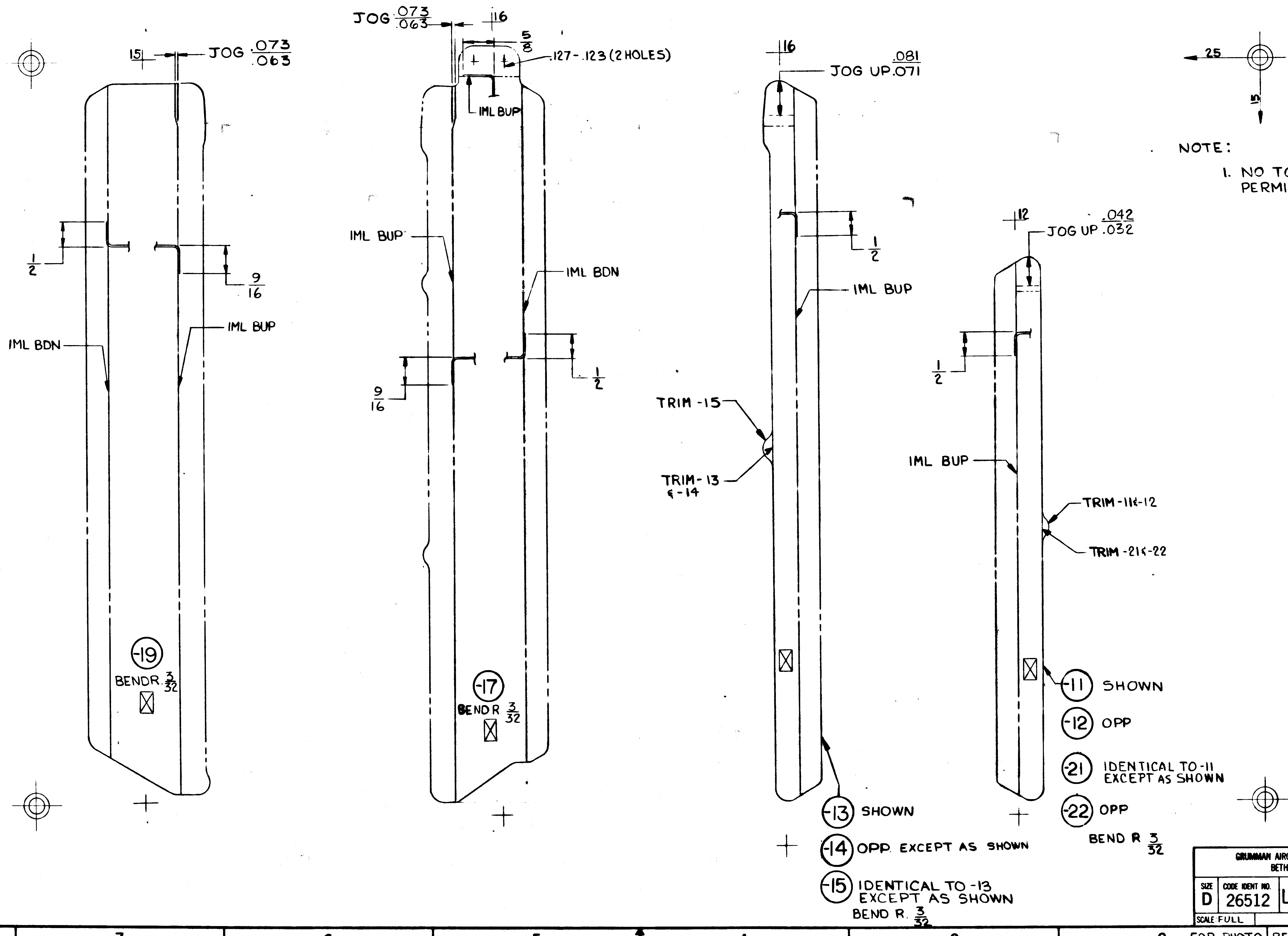
ENG 77.2 7-65

01

NAS 9-1100

TRAM OK
T.S. 6-17-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~[illegible] NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ± 1/32	✓


15
JOG .073/.063
1/2
9/16
IML BDN
IML BUP
-19
BEND R 3/32
JOG .073/.063
.16
5/8
.127-.123 (2 HOLES)
IML BUP
IML BUP
IML BDN
9/16
1/2
-17
BEND R 3/32
.16
JOG UP .081/.071
1/2
IML BUP
TRIM -15
TRIM -13 & -14
-13 SHOWN
-14 OPP EXCEPT AS SHOWN
-15 IDENTICAL TO -13 EXCEPT AS SHOWN
BEND R 3/32
.12
JOG UP .042/.032
1/2
IML BUP
TRIM -11 & -12
TRIM -21 & -22
-11 SHOWN
-12 OPP
-21 IDENTICAL TO -11 EXCEPT AS SHOWN
-22 OPP
BEND R 3/32
25
15

NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18734	
SCALE FULL		SHEET 3 OO	

FOR PHOTO REPRODUCTION

K-2

NAS 9-1100

LDW280-18735

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280 60521	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
	LDW280-60521	LM-10(40)	1 EA
	LDW280-60520	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60520	LM-10 (40)	1 EA

PART NO. LDW280-18735-17 & -18

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	2
		LTA-3DR/1(460)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60521	LM-10 (40)	2

PART NO. LDW280-18735-14

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60521	LM-10(40)	1 EA
LDW280-18735-13, -15 & -16			
LM	LDW280-60520	LTA-11 (23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13 (43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60520	LM-10 (40)	1 EA

PART NO. LDW280-18735-11 & -19

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1-00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. J15(001)
207 ME-16 8/2/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 52

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H.SCHWETER 6/16/69
LAYOUT BY G. CHANG GC 7-28-69
CHECKED BY H HICKS 7-18-69
GR LEADER 7-28-69
VEH DES INT 7/29/69
STRUCTURES
STRUCTURES N.M. 7/30/69
PROJ ENGR
REL GROUP 8-1-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ R.H. & L.H
UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18735
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

ECP A120

CDR 826-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18735-19	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.032 × 3 × 16	T6	88	
		-18		ANGLE				.040 × 2 × 6			
		-17						.040 × 2 × 6			
		-16						.036 × 2 × 12			
		-15						.036 × 2 × 12			
		-14						.032 × 2 × 15			
		-13		ANGLE				.032 × 2 × 15			
		LDW280-18735-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.032 × 3 × 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18735
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

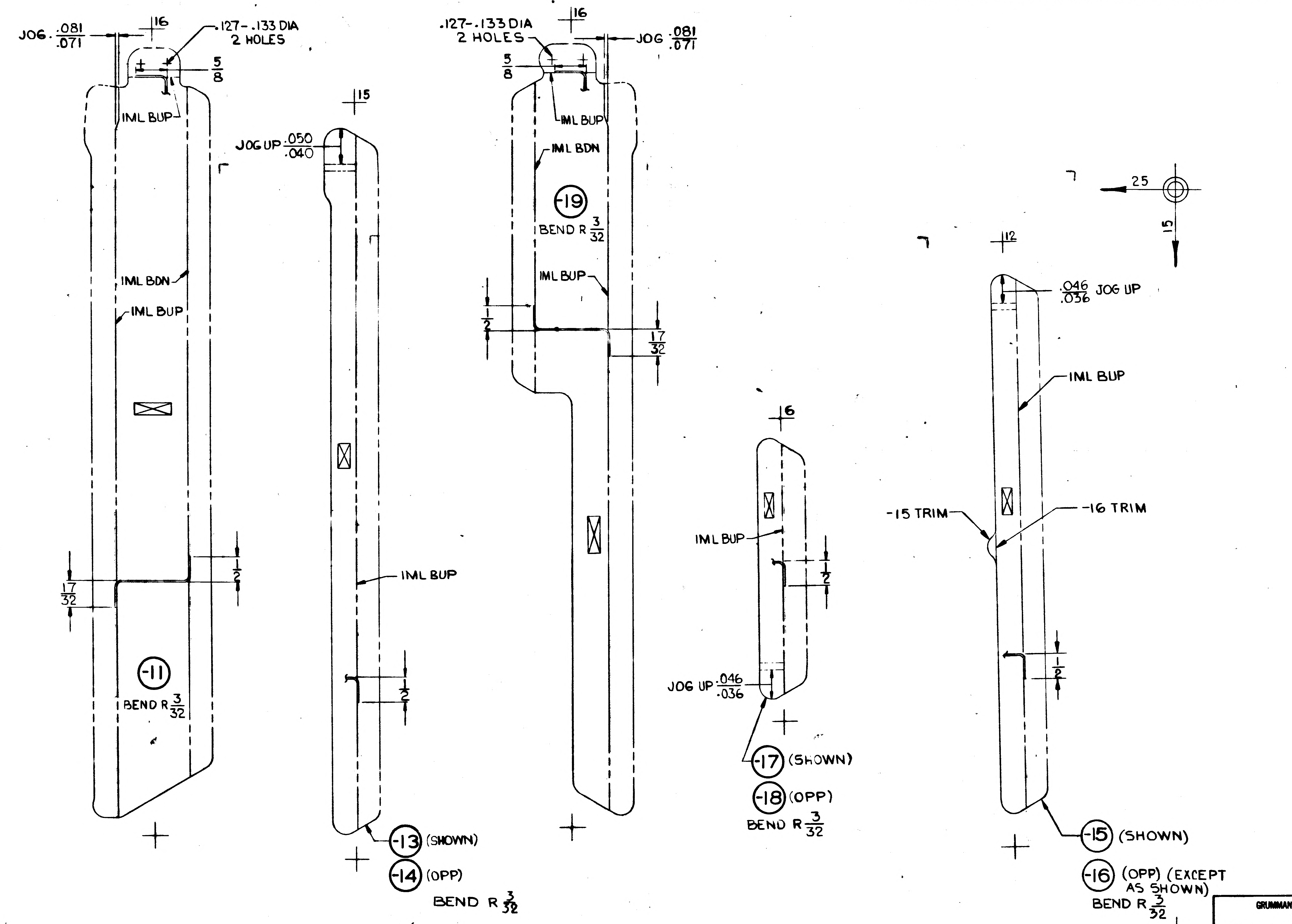
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ±1/32	✓

NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS.


JOG .081/.071
16
.127-.133 DIA 2 HOLES
5/8
IML BUP
IML BDN
IML BUP
17/32
1/2
-11
BEND R 3/32
15
JOG UP .050/.040
IML BUP
1/2
-13 (SHOWN)
-14 (OPP)
BEND R 3/32
.127-.133 DIA 2 HOLES
16
JOG .081/.071
5/8
IML BUP
IML BDN
-19
BEND R 3/32
IML BUP
1/2
17/32
6
IML BUP
1/2
JOG UP .046/.036
-17 (SHOWN)
-18 (OPP)
BEND R 3/32
25
15
12
.046/.036 JOG UP
IML BUP
-15 TRIM
-16 TRIM
1/2
-15 (SHOWN)
-16 (OPP) (EXCEPT AS SHOWN)
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18735
SCALE FULL		SHEET 3-00

FOR PHOTO REPRODUCTION

K2

DWG 73.3 REV. 5-67

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18735
EO NO. A1
CONTROL INFO NO. LDW280B8757

IN MB, B/M & F/D CREATE -21 IDENTICAL TO -11 EXCEPT MAKE GAGE .040 (WAS .032) FOR -21, N/A LDW280-60520 EFF: LM-10(40) THRU LM-14(44), LTA-11(23), & LTA-3DR/1(460) 1/MOD.

IN MB, B/M & F/D REMOVE -11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ ECD 3890 DKG 50 PG 5

REASON FOR EO: LOAD INCREASE IN UPPER DECK CUT OUT FRAME. STIFFENERS

DESCRIPTION OF EO: CREATED -21
REMOVED -11

GAEC EO RELEASE: 8-22-9; 8-25-9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		LTA-11(23)	
		LTA-3DR/1(46C)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO

DISPOSITION OF PARTS: REWORK; SCRAP -11

APPROVED BY	PSt							
DATE	8-16-69			8/16/69			8/19/69	8/25/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~UNIT~~

PRIORITY: C
DRAWING TITLE: ZEE-D/S-RH & LH UPPER DECK
DRAWING NO. LDW280-18735
EO NO. A1

CDR 082269
ISSUED BY D.SHAPIRO/G.HANSMANN X 87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18736

PART NO. LDW280-18736-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	2
↕	↕	LTA-3DR/1(460)	2
↕	↕	LM-14(44)	2
↕	↕	THRU	↕
LM	LDW280-60523	LM-10(40)	2
LM	LDW280-60521	LTA-11(23)	1
↕	↕	LTA-3DR/1(460)	1
↕	↕	LM-14 (44)	1
↕	↕	THRU	↕
LM	LDW280-60521	LM-10(40)	1
LM	LDW280-60520	LTA-11(23)	1
↕	↕	LTA-3DR/1(460)	1
↕	↕	LM-14(44)	1
↕	↕	THRU	↕
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18736-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1
↕	↕	LTA-3DR/1(460)	1
↕	↕	LM-14(44)	1
↕	↕	THRU	↕
LM	LDW280-60521	LM-10(40)	1
LM	LDW280-60520	LTA-11(23)	1
↕	↕	LTA-3DR/1(460)	1
↕	↕	LM-14(44)	1
↕	↕	THRU	↕
LM	LDW280-60520	LM-10 (40)	1

PART NO. LDW280-18736-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	8
↕	↕	LTA-3DR/1(460)	8
↕	↕	LM-14 (44)	8
↕	↕	THRU	↕
LM	LDW280-60523	LM-10(40)	8
LM	LDW280-60522	LTA-11(23)	4
↕	↕	LTA-3DR/1(460)	4
↕	↕	LM-14 (44)	4
↕	↕	THRU	↕
LM	LDW280-60522	LM-10 (40)	4
LM	LDW280-60521	LTA-11(23)	7
↕	↕	LTA-3DR/1(460)	7
↕	↕	LM-14(44)	7
↕	↕	THRU	↕
LM	LDW280-60521	LM-10(40)	7
LM	LDW280-60520	LTA-11(23)	7
↕	↕	LTA-3DR/1(460)	7
↕	↕	LM-14(44)	7
↕	↕	THRU	↕
LM	LDW280-60520	LM-10(40)	7

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -20

GRUMMAN REL INFO
PRIM NO. 207
JK(001) ME-16 8/5/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE V

LCD 7890 - PKG 52

ECP A120

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A.SCHMADTKE 6-28-69

LAYOUT BY CHAN GC LANG JZ LEIFER RL SHAPIRO DS

CHECKED BY H. HICKS 7-1-69

GR LEADER 7/1/69

VEH DES INT 8-1-69

STRUCT

STRUCT NM 8-2-69

PROJ ENGR 8/2/69

REL GROUP 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TEE
DESCENT STAGE~UPPER DECK
PROP. TANK CUTOUT~FRAME SPLICE

SIZE B | CODE IDENT NO. 26512 | LDW280-18736

SCALE NONE | SHEET 1.00 OF 4

CDR 8-27-69

ENG 77.1 12-65

01

NAS 9-1100

LDW280-18736

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11 (23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		THRU	
LM	LDW280-60520	LM-10(40)	1 EA
PART NO. LDW280-18736-17,-19&-20		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE

DRAWN BY
LAYOUT BY
CHECKED BY

PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18736
SCALE NONE		SHEET 1.01

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18736-20	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.036 X 2 X 12	T6	88	
		LDW280-18736-19	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.036 X 2 X 12	T6	88	
		-17		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 X 2 X 2	T6		
		-15		ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 2 X 2	T6	88	
		-13		TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS183B3DG X 1 1/8	T73	NONE	
		LDW280-18736-11	E	TEE	AL ALLOY EXTR	QQ-A-200/11	7075-T6511	GS183A13DG X 1 1/8	T73	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030
						T73511	AL HEAT TREAT	LSP-14-5201

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18736

SCALE NONE

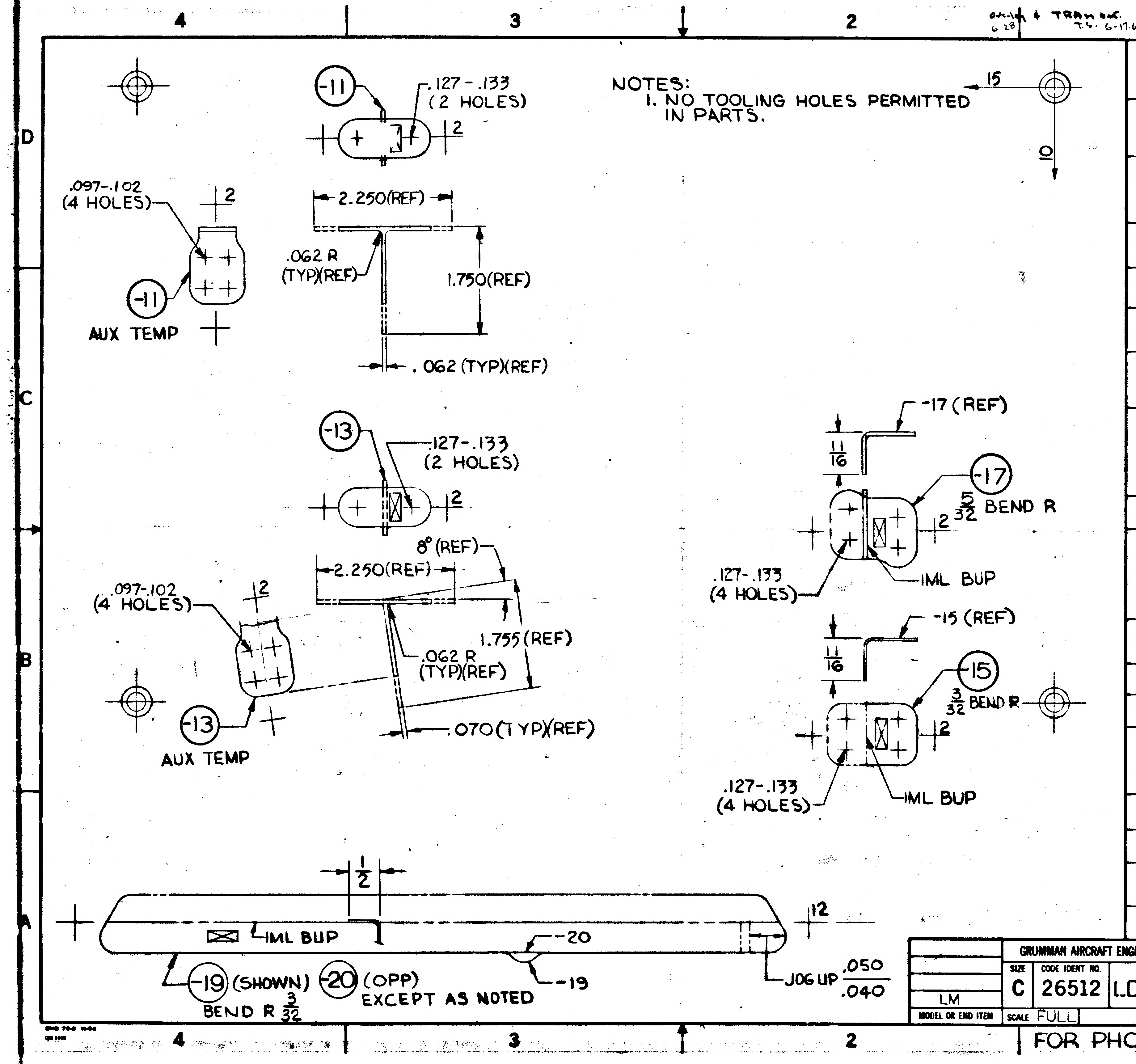
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

ORIG & TRAM CHK.
6-18 T.S. 6-17-69



4
3
2
1
D
C
B
A
-11
.127-.133
(2 HOLES)
2
.097-.102
(4 HOLES)
AUX TEMP
2.250(REF)
.062 R
(TYP)(REF)
1.750(REF)
.062 (TYP)(REF)
-13
8° (REF)
1.755(REF)
.070(TYP)(REF)
15
10
-17 (REF)
11/16
-17
5/32 BEND R
IML BUP
.127-.133
(4 HOLES)
-15 (REF)
-15
3/32 BEND R
1/2
IML BUP
-20
-19
12
JOG UP .050/.040
-19 (SHOWN) -20 (OPP)
EXCEPT AS NOTED
BEND R 3/32

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18736

LDW280-18736

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE C	CODE IDENT NO. 26512	LDW280-18736
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18736	EO NO. A1
CONTROL INFO NO. LM5-21934	

ON -11 & -13 DETAILS ADD FINISH #88 [SHEET #2].

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3890 (5)

REASON FOR EO: TO ADD REQ'D INFO

DESCRIPTION OF EO: ON -11 & -13 ADDED FINISH #88

Ⓡ GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU	
		LM14 (44), LTA-1 (23)	
		LTA-3DR (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		✓		APPROVED BY							Bauman
				DATE	8-29-69			8/29/69	8-19-69	8-19-69	9/2/69	8/21/69
REVISE DWG	RECORD EO	REWORK	SCRAP	8/19/69	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S - UPPER DECK - PROP TANK CUTOUT TEE FRAME SPLICE	LDW280-18736	A1

ISSUED BY LIAISON J. PAULSEN X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LH-10 (40).

	DRAWING NO (*)	TITLE	CHANGE No.
✓	LDW280-18701	SEE DWG	A1
✓	LDW280-18700		A1
✓	LDW280-18692		A1
✓	LDW280-18745		A1
✓	-18736		A2
+	-18731		A1
+	-18702		A2
+	M18090		A1
+	-18747		A1
+	LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 53 PG3 & 4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. *6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T.(70) EFF.

GAEC EO RELEASE: 9-12-69; VK 9/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T.(70)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK, SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	RGF							
DATE	9-3-69			8/21/69	9/8/69		9/11/69	9/18/69
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1670

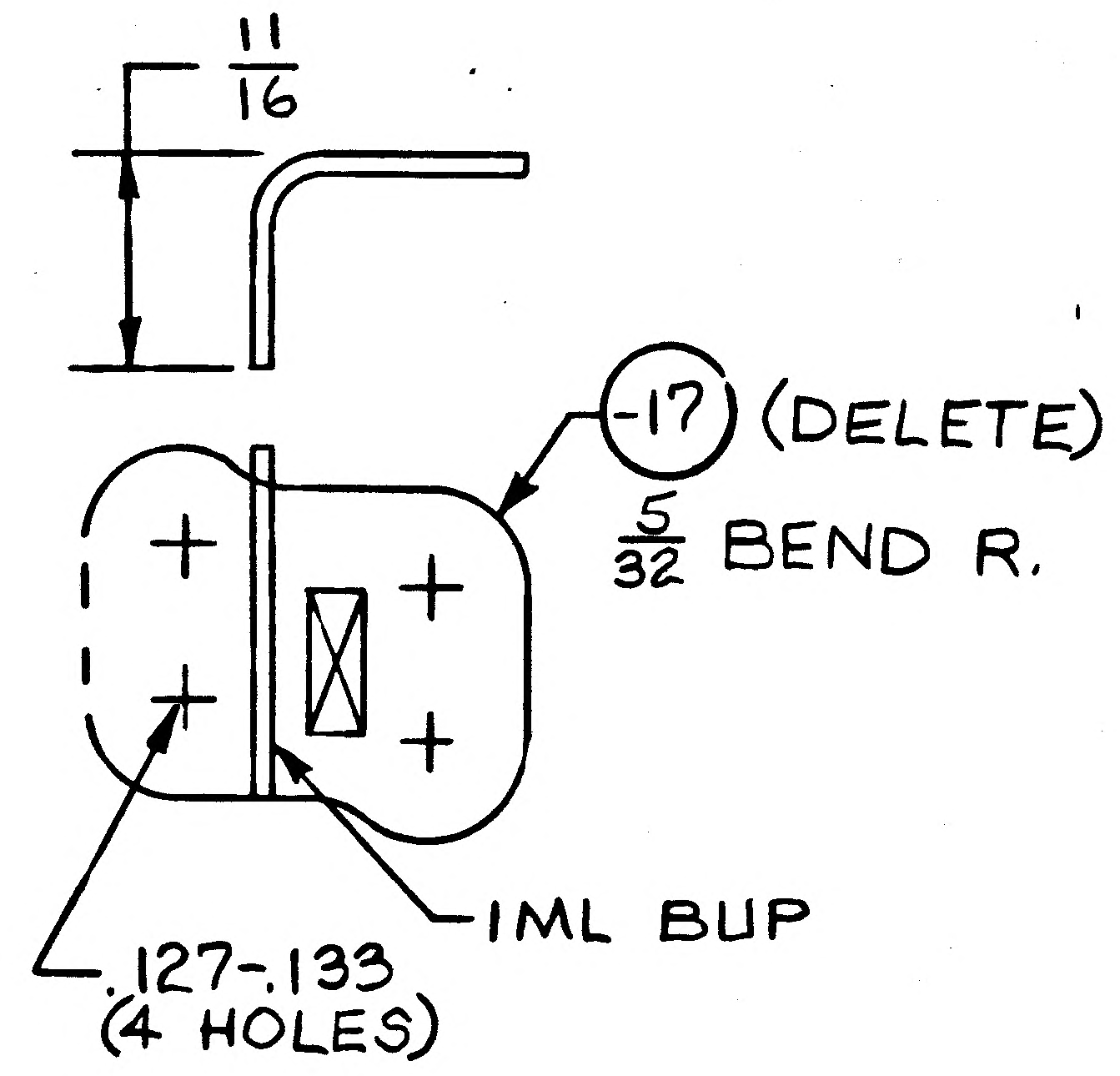
9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

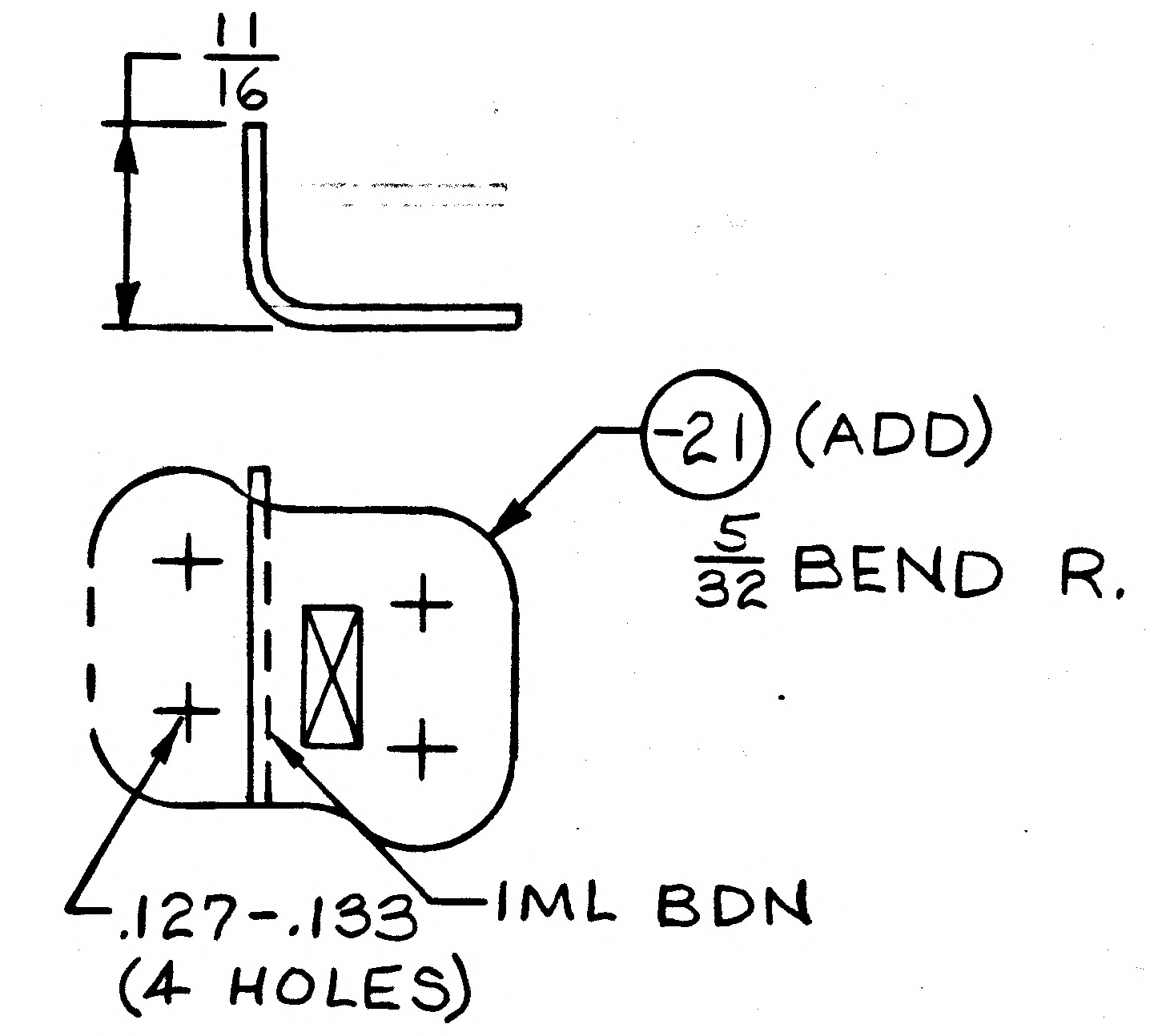
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18736		EO NO. A3	
CONTROL INFO NO. LM-2-5641			





IN FLD/DWG, B/M & MOD/BLK CREATE -21
-21 REPLACES & IS IDENTICAL TO -17 EXCEPT AS SHOWN
SCRAP -17

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD3890 (2)

REASON FOR EO
OPPOSITE PART REQUIRED FOR CORRECT INSTALLATION AT NEXT ASSEMBLY.

DESCRIPTION OF EO
IN FLD/DWG, B/M & MOD/BLK CREATED -21. REMOVED -17

R GAEC EO RELEASE
JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44) LTA-11 (23) LTA-3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-17
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					K.C			
DATE	10/21/69			RC. 10-25-69	10/21/69	10/21/69	10/22/69	10/23/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TEE-D/S-UPPER DECK-PROP TANK CUTOUT-FRAME SPLICE	LDW280-18736	A3

ISSUED BY LIAISON J. MALONEY 10/20/69 x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

90

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18736 | EO NO. A4

CONTROL INFO NO. LM-2-5703

IN M/B FOR -15

REMOVE 1 REQD FOR NHA LDW280-60520
REMOVE 1 REQD FOR NHA LDW280-60521
REMOVE 2 REQD FOR NHA LDW280-60523
ADD 4 REQD FOR NHA LDW280-60587

IN M/B FOR -17

NHA LDW280-60520 S/B LDW280-60587

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 52 ECP A120	(2)

REASON FOR EO: CHG. IN ASSY. SEQUENCE.

DESCRIPTION OF EO: IN M/B FOR -15 & -17 CHGD. NHA TO LDW280-60587.

GAEC EO RELEASE: R

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB-CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY					KC			
DATE	11-21-69			11/21	11/17/69	11/17/69	11/22/69	11/16/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

TEE D/S
DRAWING TITLE: FRAME SPLICE UPPER DECK~PROP TANK CUTOUT

DRAWING NO.: LDW280-18736 | EO NO.: A4

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

90

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18736

EO NO. A5

CONTROL INFO NO. LM-2-5727

THIS IS A REVISION OF EO A4
IN FIELD & DESCRIPTION OF EO
-17 S/B -21.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑

LCD 3890 PKG 52 ECP A120 (2)

REASON FOR EO: -17 HAS BEEN REPLACED BY -21.
REF: EO A3

DESCRIPTION OF EO: REF EO A4
-21 WAS -17.

R EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	
LM		LTA-3 DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					KC			
DATE				12/5/69	12/1/69	12-1-69	12/5/69	12/2/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: TEE - D/S FRAME SPLICE UPPER DECK - PROP TANK CUTOUT

DRAWING NO.: LDW280-18736

EO NO.: A5

ISSUED BY **LIAISON** J. STECEWYCZ X3604 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 1859
CONTROL INFO NO. LM-5-22301

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14	↑	3	1	↑	A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19	↓	6	2	↓	
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890		

REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK280-11372

DESCRIPTION OF EO: ON -*, QTY ■ REQ'D/VEHICLE WAS ▲

GAEC EO RELEASE (R)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	3-10-70				3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO-280 | EO NO.: 1859

ISSUED BY C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

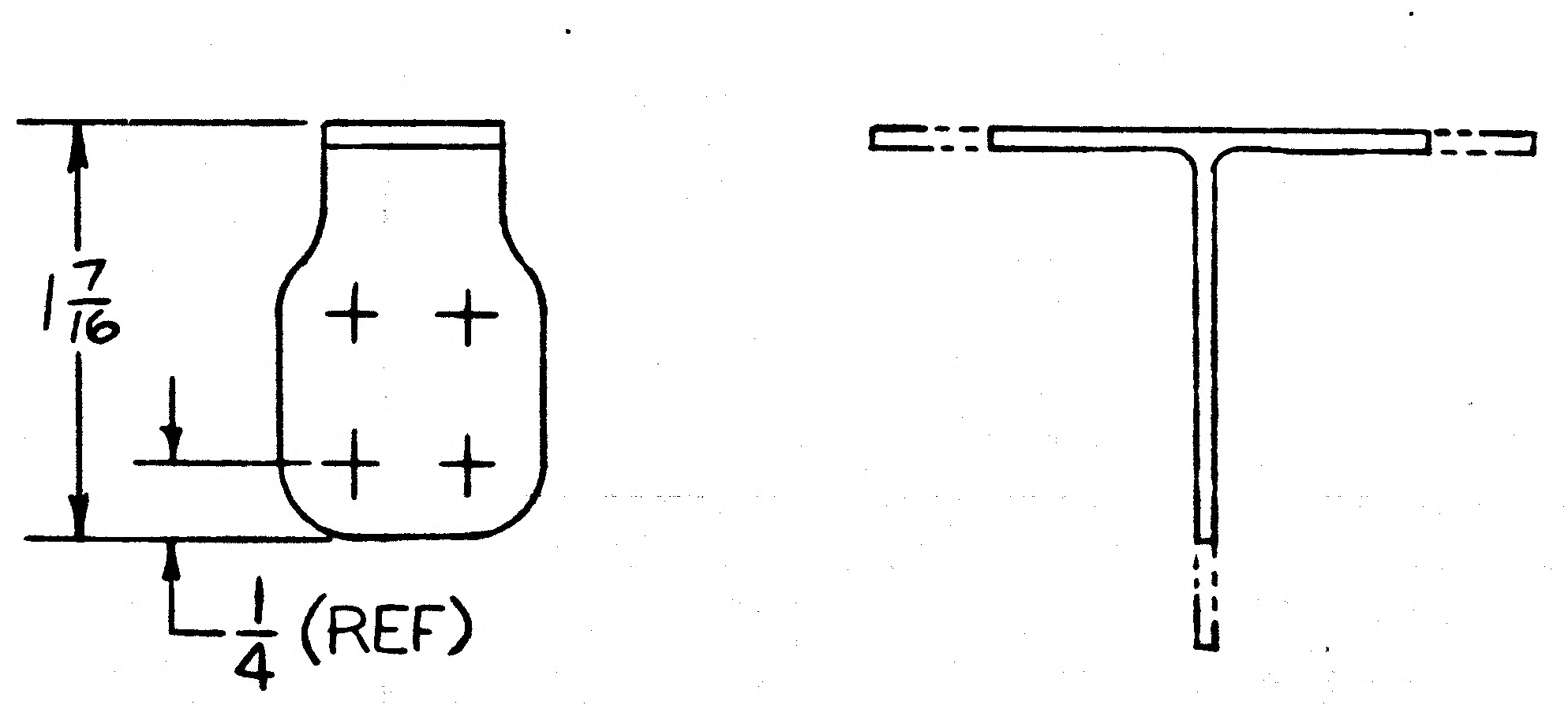
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18736 EO NO. A7
CONTROL INFO NO. LM-2-6177

IN F/D, B/M, & M/B
ADD -23, 1 REQD FOR NHA LDW280-60521 EFF LM-11(41) THRU LM-14(44).
-23 IS IDENTICAL TO -11 EXCEPT AS SHOWN.
REMOVE -11(1)
FROM NHA
LDW280-60521
EFF LM-11(41)
THRU LM-14(44).

NOTE: DO NOT ADD
DIMS TO DWG



LDW280-18736-23

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 02

REASON FOR EO: TO PREVENT INTERFERENCE ON ASSY

DESCRIPTION OF EO: IN F/D, B/M, & M/B ADDED -23, REMOVED -11(1) FROM NHA EFF LM-11 THRU LM-14, LTA-11, & LTA-3 DR/1

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11(41)	
		THRU	
		LM-14(44)	

	REVISE DWG	RECORD EO	REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY						PDF				KC	KC	PDF	
DATE	✓			✓	10 Apr 70	4-17-70 VDI			4/16/70	4/13/70	4/13/70	4-17-70	4/14/70

PRIORITY: C
DRAWING TITLE: TEE - D/S UPPER DECK PROP TANK CUTOUT ~ SPLICE
DRAWING NO.: LDW280-18736
EO NO.: A7

ISSUED BY LIAISON J. STECEWYCZ X3605 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18736

EO NO. A8

CONTROL INFO NO. LM-5-22411

THIS EO REVISES EO A7

IN DESCRIPTION OF EO BLOCK:

ADDED -23, REMOVED -11(1) FROM NHA LDW280-60521
EFF. LM-11 (41) THRU LM-14 (44).

WAS

ADDED -23, REMOVED -11(1) FROM NHA
EFF : LM-11 THRU LM-14, LTA-11(23) & LTA-3DR/.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCO 3890 PK # 02

REASON FOR EO RTE 05-131-1103
TO AGREE WITH FLD OF EO & EO EFF BLOCK

DESCRIPTION OF EO
REVISED DISCRIPTION OF EO BLOCK ON EO A7 AS NOTED ABOVE.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11 (41)	THRU
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO

DISPOSITION OF PARTS: REWORK ✓ · SCRAP

APPROVED BY					KC	CH		
DATE	4-23-70			4/22/70	4/16/70	4-16-70	4-24-70	4/27/70
4/15-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C

DRAWING TITLE: TEE D/S PROP TANK CUTOUT ~ SPLICE

DRAWING NO. LDW280-18736

EO NO. A8

ISSUED BY LIAISON S. GRECO x86755 SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18737

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	4
		LTA-3DR/1(460)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
LM	LDW280-60522	LM-10(40)	4

PART NO. LDW280-18737-19 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60522	LM-10(40)	1 EA

PART NO. LDW 280-18737-11,-12,-13,-14,-15,-17,-18 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. — GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO — PRIM NO. JK(001) 207 ME-16 8/9/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3890

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H. MURPHY
LAYOUT BY J. LANG
CHECKED BY D. FASS 7-22-69
GR. LEADER 7/30/69
V.D.I. Thojusen 7-30-69
STRUCT
STRUCT N.M. 8-7-69
PROJ ENGR 8/8/69
REL GROUP Marsh 8/4/69

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ FWD UPPER DECK ~ PANEL STIFFENER

SIZE B
CODE IDENT NO. 26512
LDW280-18737
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

ECP A120

CDR 8-27-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18737-19	E	CLIP	AL ALLOY SH	QQ-A 250/12	7075	.040 × 2 × 2	T6	88	
		-18		ZEE				.040 × 3 × 15			
		-17		ZEE				.040 × 3 × 17			
		-15		ANGLE				.036 × 2 × 15			
		-14						.040 × 2 × 15			
		-13						.040 × 2 × 15			
		-12						.036 × 2 × 15			
		LDW280-18737-11	E	ANGLE	AL ALLOY SH	QQ-A 250/12	7075	.036 × 2 × 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18737

SCALE NONE SHEET 2.00

ENG 77.2 7-65

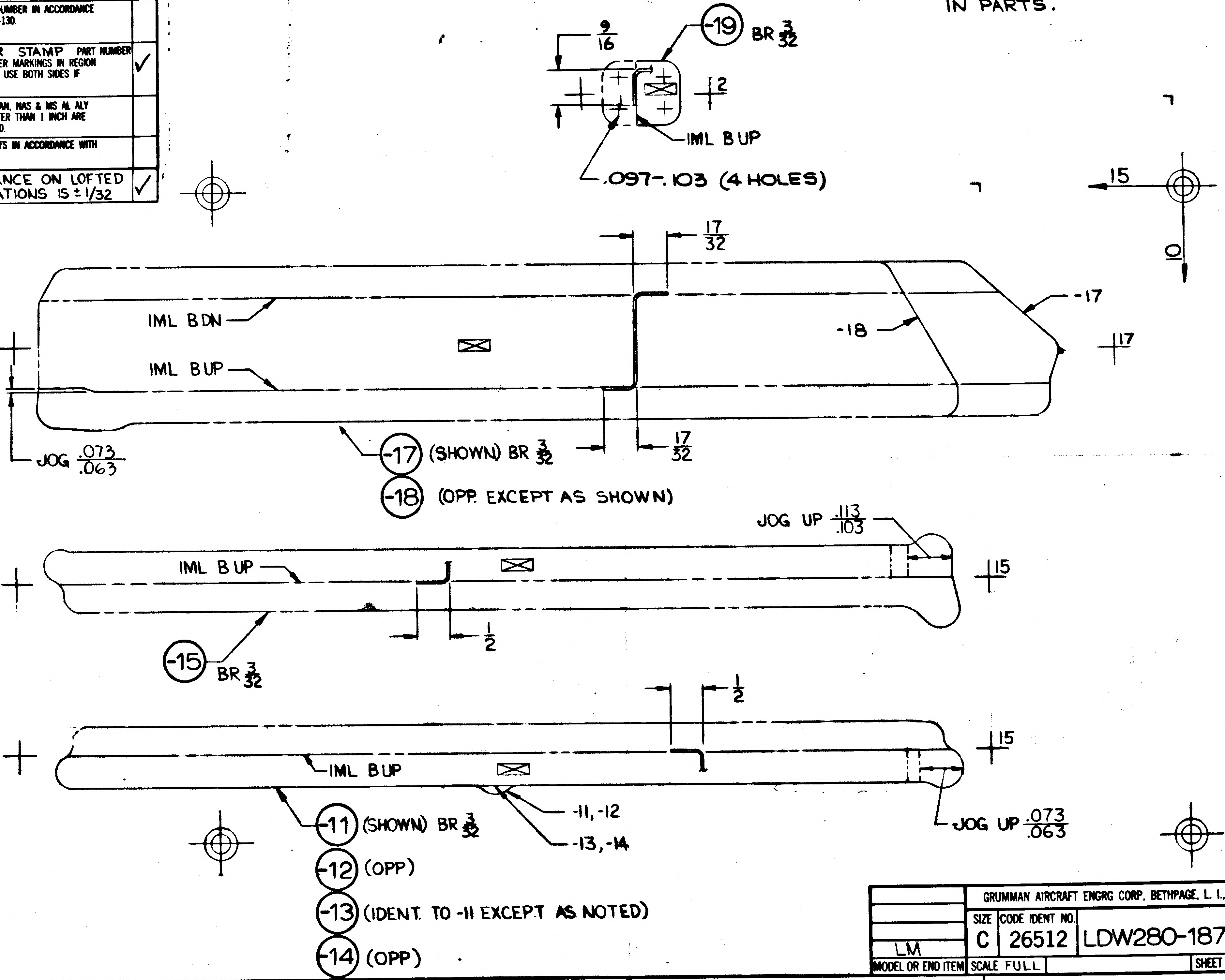
01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



(-19) BR 3/32
9/16
2
IML B UP
.097-.103 (4 HOLES)
15
10
17/32
-17
-18
IML BDN
IML B UP
17
17/32
JOG .073/.063
(-17) (SHOWN) BR 3/32
(-18) (OPP. EXCEPT AS SHOWN)
JOG UP .113/.103
IML B UP
15
1/2
(-15) BR 3/32
1/2
15
IML B UP
-11, -12
-13, -14
JOG UP .073/.063
(-11) (SHOWN) BR 3/32
(-12) (OPP)
(-13) (IDENT. TO -11 EXCEPT AS NOTED)
(-14) (OPP)

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM	SIZE C	CODE IDENT NO. 26512	LDW280-18737
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18737

01 [illegible]

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18737 EO NO. A1

CONTROL INFO NO. LM-2-5701

IN M/B FOR -19
4 REQD ON NHA LDW280-60522
S/B 2 REQD.
ADD 2 REQD FOR NHA LDW280-60587.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 ECP A120 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
CHG. IN ASSY. SEQUENCE.	IN M/B FOR -19 2 REQD ON NHA LDW280-60522 WAS 4 REQD, ADDED 2 TO NHA LDW280-60587.	VC 1118 11-24-69

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	OSt				KC			
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	DATE	11-21-69			11/21	11/17/69	11/21/69	11/22/69	11/18/69
					VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOES~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE~D/S FWD UPPER DECK ~ STIFFNER	LDW280-18737	A1

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION V.D.I. GROUP NO. 280 PL 25

01

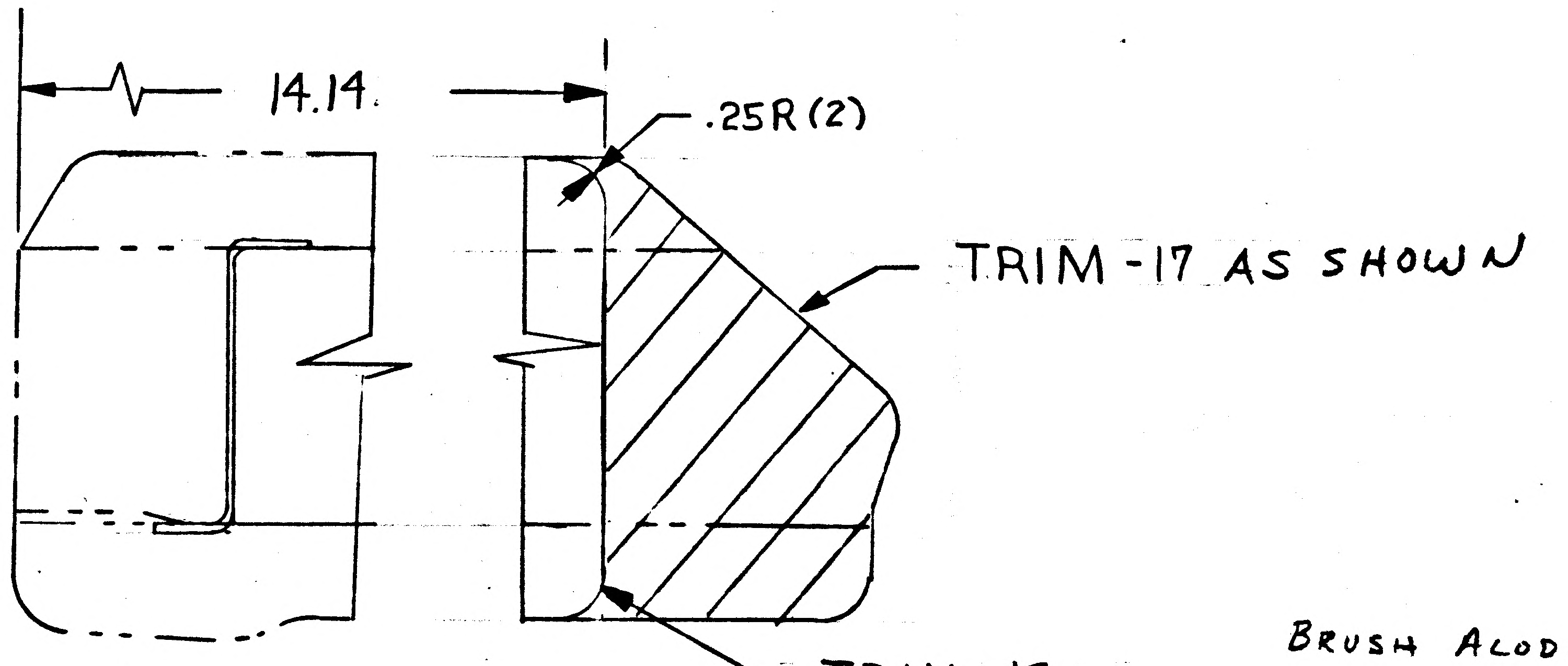
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18737 | EO NO. A2
CONTROL INFO NO. LM2-5853

TRIM-17 AS SHOWN IN SHADED AREA!



BRUSH ALODINE BARE SURFACES PER LSP 14-4010

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 69 (2)

REASON FOR EO: TRIMMED DUE TO INTERFERENCE WITH PLUME DEFLECTOR FITTING

DESCRIPTION OF EO: TRIMMED -17

R GAEC EO RELEASE: JC 1-28-70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (44) THRU 14 (44)	
		LTA 3 DR/1	(460)
LM		LTA 11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-17	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				KC			
DATE	1-19-70			1/19/70	1/8/70	1-8-70	1/27/70	1/9/70
	VDT	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE DESCENT STAGE FWD UPPER DECK-PANEL STIFFNER	LDW 280-18737	A2

LIAISON
ISSUED BY DON RAGAS / J. MALONEY 3604 SECTION VDI GROUP NO. 335 PL 2

01

NAS 9-1100

LDW280-18738

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11 (23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1

PART NO. LDW280-18738-16

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60520	LM-10(40)	1 EA

PART NO. LDW280-18738-11,-13 -15,-17 & -19

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00									
REV										
SHEET	2.00									
REV										
SHEET	3.00									
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	ME-16	8/7/9	

S 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 52

ECP A 120

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	ED STONHAM		
LAYOUT BY	G. CHAN		
CHECKED BY	H. Hicks		
GRLEADER	7/31/69		
VEH DES INT	7-31-69		
STRUCTURES		PROJ ENGR	8/7/69
STRUCTURES	N.M. 8-6-69	REL GROUP	8/7/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DECENT STAGE - L.H. & R.H.
UPPER DECK ~ PROP. TANK CUTOUT ~ FRAME

SIZE B

CODE IDENT NO. 26512

LDW280-18738

SCALE NONE

SHEET 1.00 OF 3

CDR 8-27-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18738-19	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 4 X 25	T6	88	3C
		17	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.040 X 5 X 16	T6	88	3C
		-16	E	↕	↕	↕	↕	.040 X 5 X 16	↕	↕	5C
		-15	E	↕	↕	↕	↕	.040 X 5 X 16	↕	↕	7C
		-13	E	↕	↕	↕	↕	.063 X 5 X 16	↕	↕	6C
		LDW280-18738-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.071 X 5 X 54	T6	88	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

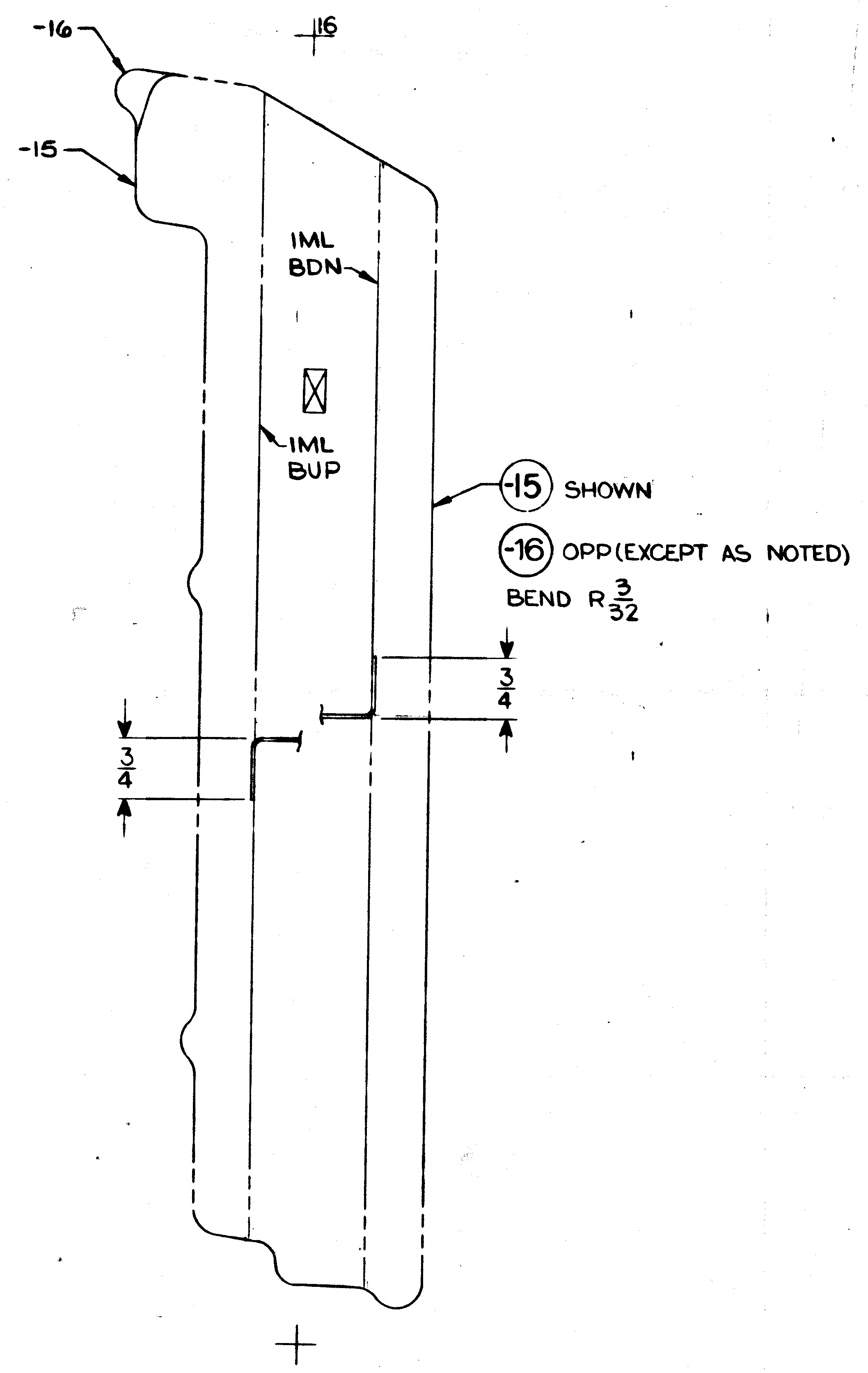
SIZE	CODE IDENT NO.	
B	26512	LDW280-18738

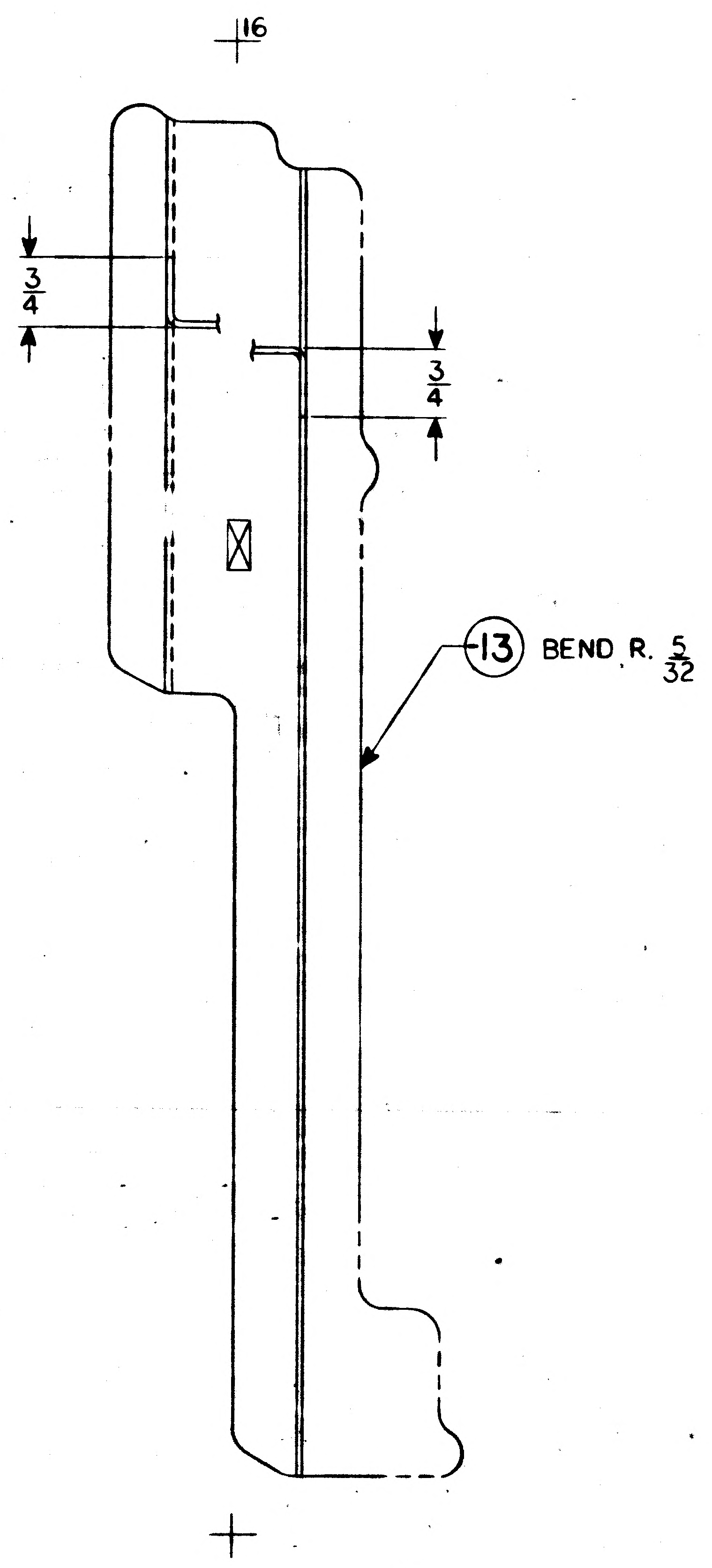
SCALE NONE SHEET 2.00

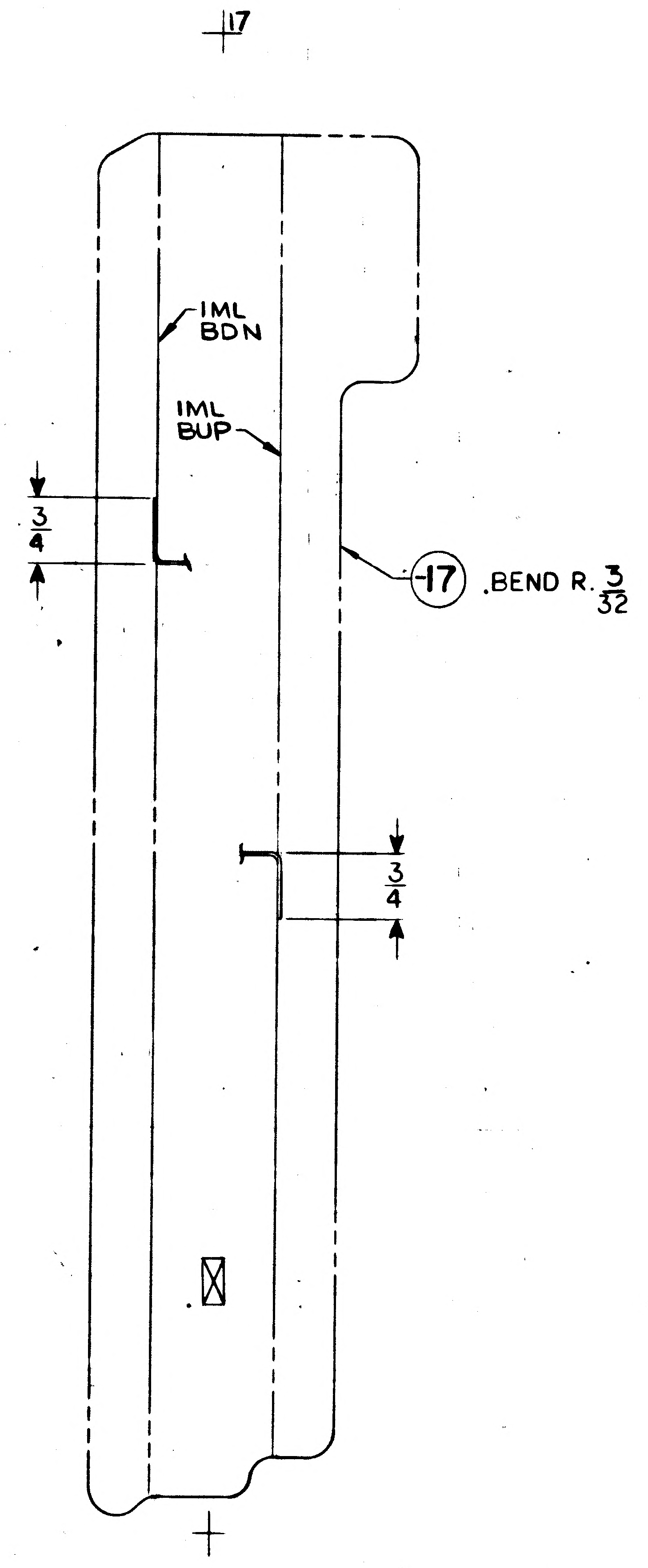
ENG 77.2 7-65

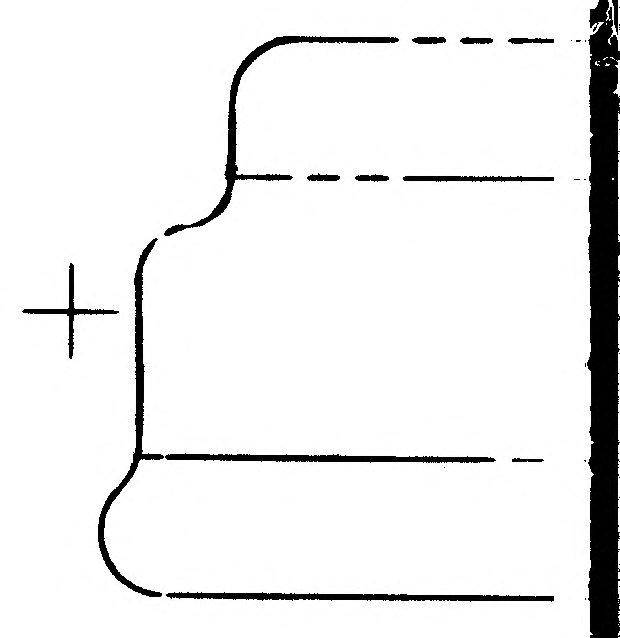
01

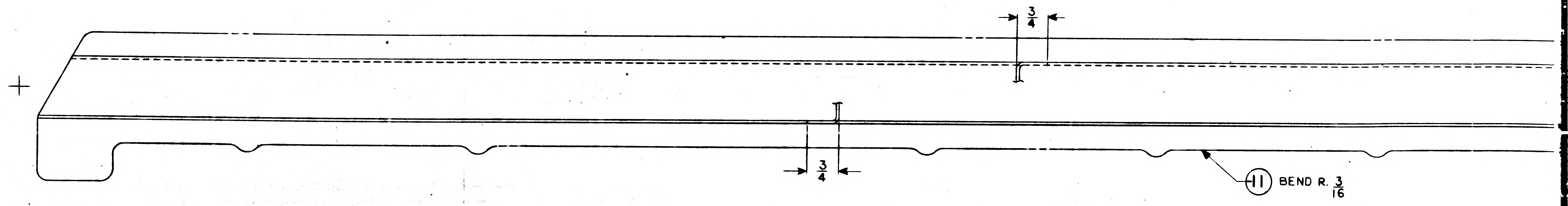
NAS 9-1100


-16
-15
16
IML BDN
IML BUP
-15 SHOWN
-16 OPP (EXCEPT AS NOTED)
BEND R 3/32
3/4
3/4


16
3/4
3/4
-13 BEND R. 5/32


17
IML BDN
IML BUP
3/4
-17 BEND R. 3/32
3/4




3/4
3/4
-11 BEND R. 3/16

01/02 NAS 9-1100

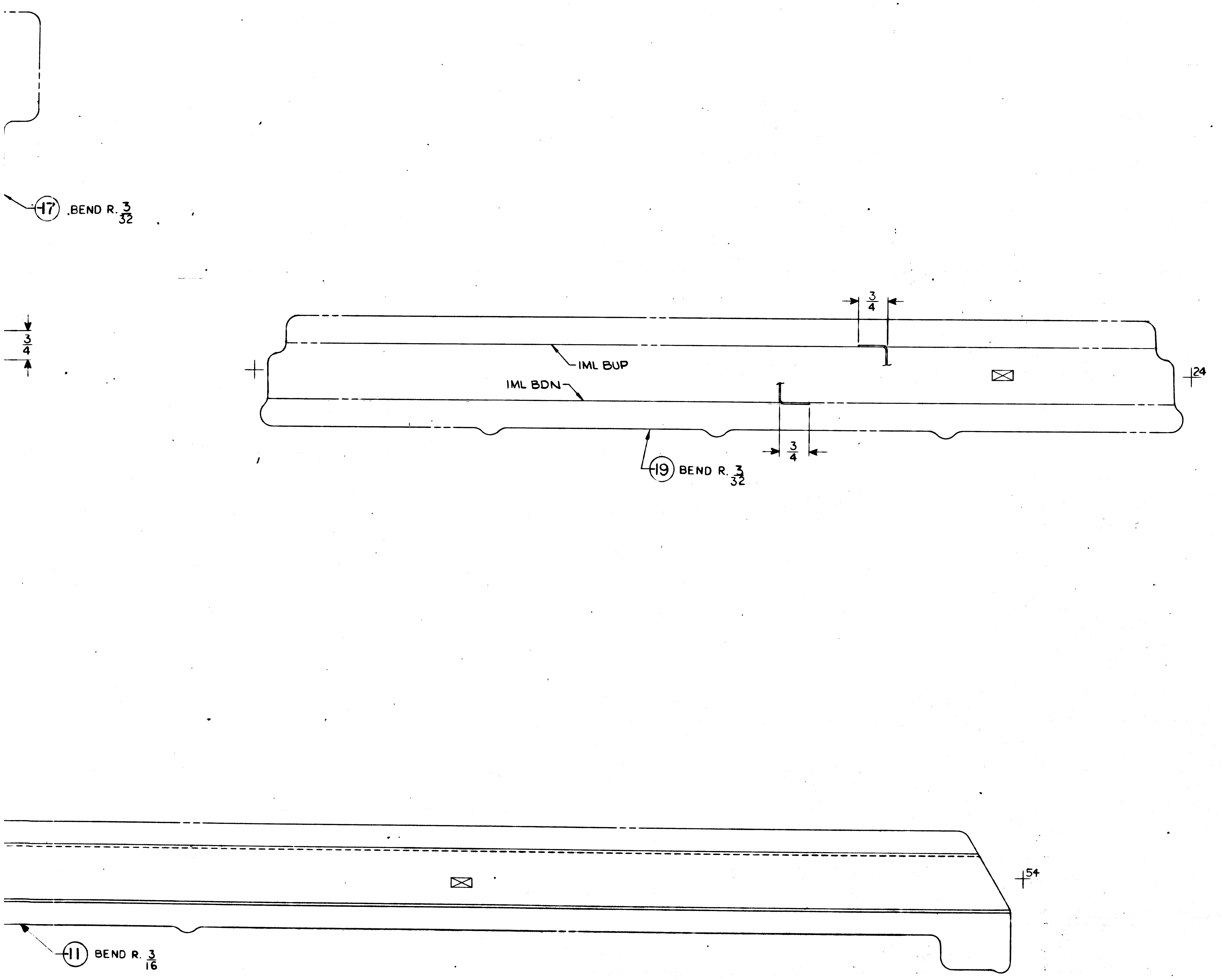
CODE IDENT NO.	DWG NO	REV	SHEET
26512	LDW280-18738		3

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS



02/02 NAS 9-1100

UNLESS OTHERWISE SPECIFIED			CONTRACT NO.		GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714		
DIMENSIONS IN INCHES			DRAWN BY				
LINEAR TOL	.XX	± .03	LAYOUT BY				
	.XXX	± .010	CHECKED BY				
ANGULAR TOL		± 0°30'	GR LEADER				
TOL ON LOFTED DELINEATIONS IS			REL GROUP				
			PROJ ENGR		SIZE J	CODE IDENT NO. 26512	LDW280-18738
			GOVT APPD		SCALE FULL		SHEET 3.00

K2

1 FOR PHOTO REPRODUCTION

2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

REV	SHEET
LDW280-18738	3

1 FRAME FRAME 2

LDW280-18738

LDW280-18738

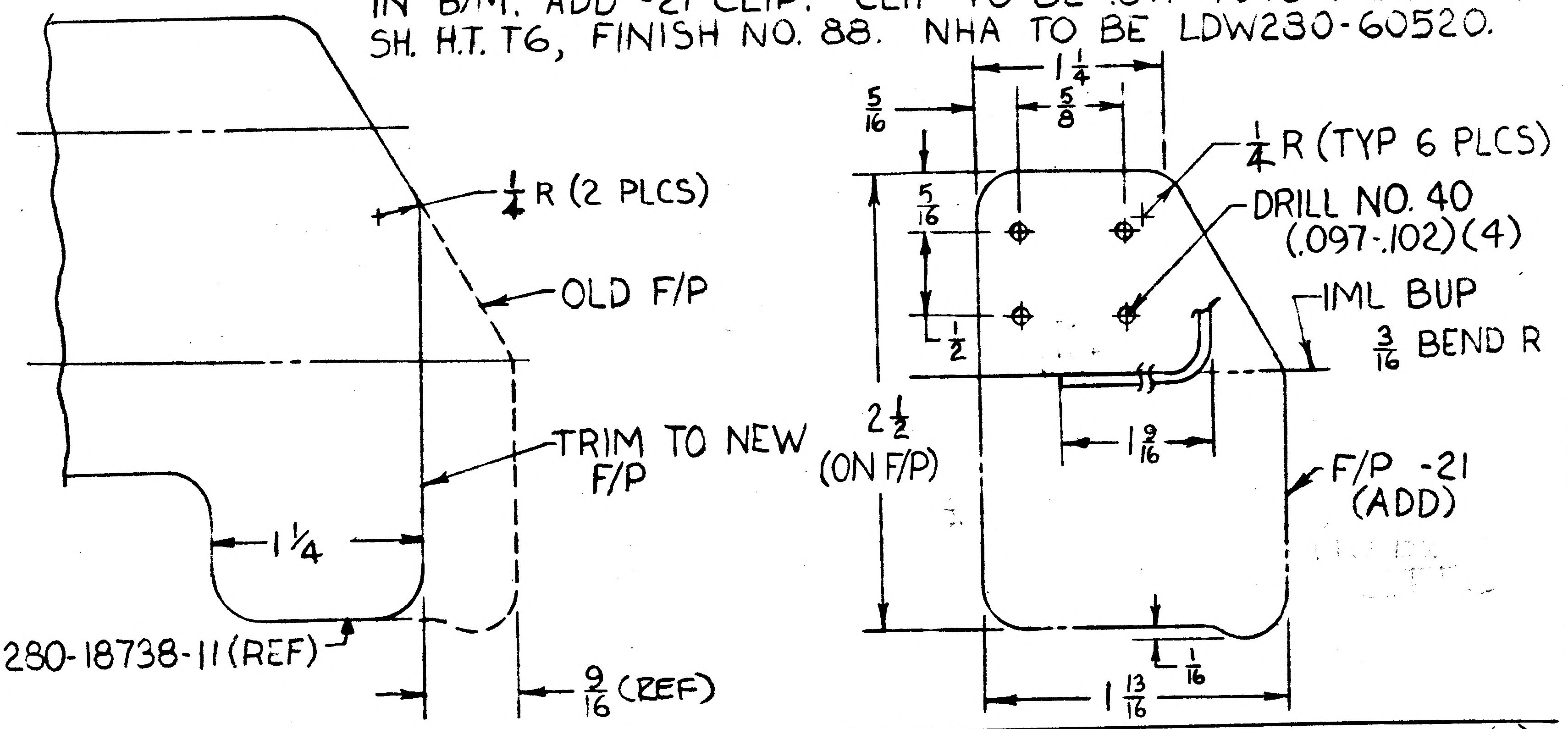
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEEP' 'G ORDER

DWG. NO. LDW280-18738		EO NO. A1
CONTROL INFO NO. LM-2-5664		

IN F/D, TRIM -11 & ADD -21 AS SHOWN
IN B/M, ADD -21 CLIP. CLIP TO BE .071 7075 AL ALLOY
SH. H.T. T6, FINISH NO. 88. NHA TO BE LDW230-60520.



1/4 R (2 PLCS)
OLD F/P
TRIM TO NEW F/P
1 1/4
LDW280-18738-11 (REF)
9/16 (REF)
1 1/4
5/8
5/16
5/16
1/2
1/4 R (TYP 6 PLCS)
DRILL NO. 40 (.097-.102) (4)
IML BUP
3/16 BEND R
2 1/2 (ON F/P)
1 9/16
F/P -21 (ADD)
1/16
1 13/16

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG #2 ECP A 120	(2)

REASON FOR EO
TO PREVENT INTRF BETWEEN
ZEE & LDW280M17643.

DESCRIPTION OF EO
IN F/D & B/M
TRIMMED 9/16 MATL FROM -11 & ADDED -21.

R GAEC EO RELEASE

EFFECTIVITY			
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	
LM		LTA-3 DR/1 (460)	
LM	LM-10 (40)	THRU	LM-14 (44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					KC			
✓		-11		DATE				11/14/69	11/4/69	11/6/69	11/13/69	11/12/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C
DRAWING TITLE ZEE D/S LH. & R.H. UPPER DECK ~ PROP TANK CUTOUT
DRAWING NO. LDW280-18738
EO NO. A1

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION VEHICLE DESIGN INT. GROUP NO. 335 PL 25

01

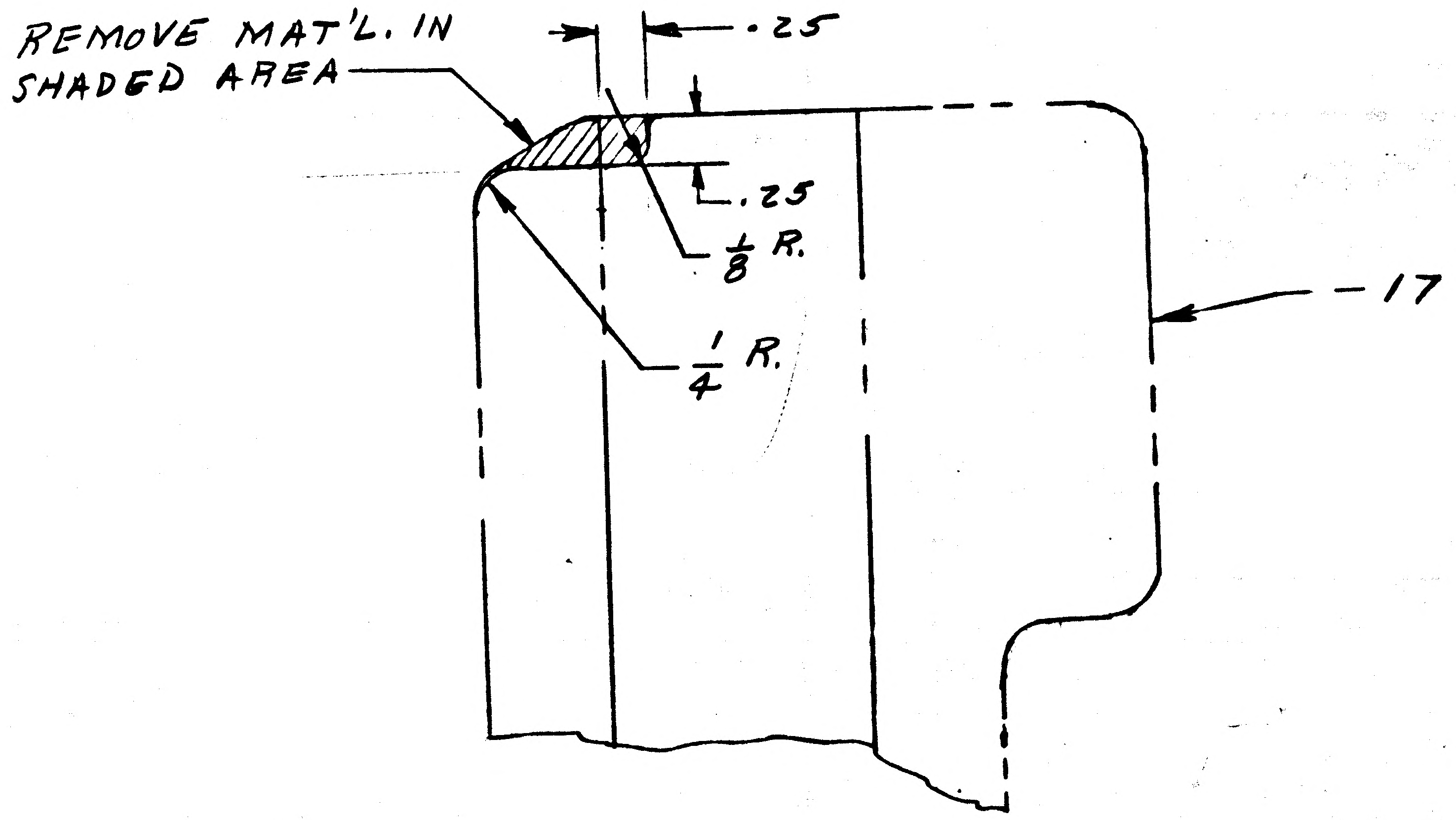
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING OR R

DWG. NO. LDW280-18738
EO NO. A2
CONTROL INFO NO. LM-5-22862



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3890 PKG #2 ECPA120

REASON FOR EO: PROVIDE CLEARANCE FOR PLATE NUT ON HIGHER ASSY

DESCRIPTION OF EO: TRIMMED -17

GAEC EO RELEASE: ②

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1	(460)
LM		LTA-11 (23)	
LM	LM-10(40)	THRU LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	PJT			VR	CAW	CH	PJT	
DATE	6-30-70			6/26/70	6/23/70	6-23-70	6-30-70	6/23/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE ~ D/S ~ L.H. & R.H. UPPER DECK ~ PROP. TANK CUTOUT ~ FRAME	LDW280-18738	A2

ISSUED BY LIAISON C. COSMA x86255 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18739

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18739-14			
LM	LDW280-60521	LTA-11(23)	1
↕	↕	LTA3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60521	LM-10(40)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-18739-11 -13 -15, -17 & -19			
LM	LDW280-60520	LTA-11(23)	1EA
LM	LDW280-60520	LTA-3DR/1(460)	1EA
LM	LDW280-60520	LM-14(44)	1EA
↕	↕	LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60520	LM-10(40)	1EA

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00	
REV						

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO
PRIM NO. -207 ME-16 8/2/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890-CCA2205

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY MASONE 6-18-69
LAYOUT BY G.CHAN HCDS D.SHAPIRO 7/18/69
CHECKED BY D.FASS 7-22-69
GR LEADER 7-28-69
VEH DES INT 7/29/69
STRUCT
STRUCT N.M 7-30-69
PROJ ENGR 7/31/69
REL GROUP 8-1-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ CUTOUT
STIFFENER ~ LH. ~ UPPER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18739
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

ECPA 120

CDR 8-28-69

0 1

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18739-19	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.040x4x17	T6	88	
		↑ -17	↑	ZEE	↑	↑	↑	.063x4x16	↑	↑	
		-15		ZEE				.063x5x39			
		-14		ZEE				.071x5x39			
		↓ -13	↓	ZEE	↓	↓	↓	.071x5x39	↓	↓	
		LDW280-18739-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.071x4x16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18739
SCALE NONE
SHEET 2.00

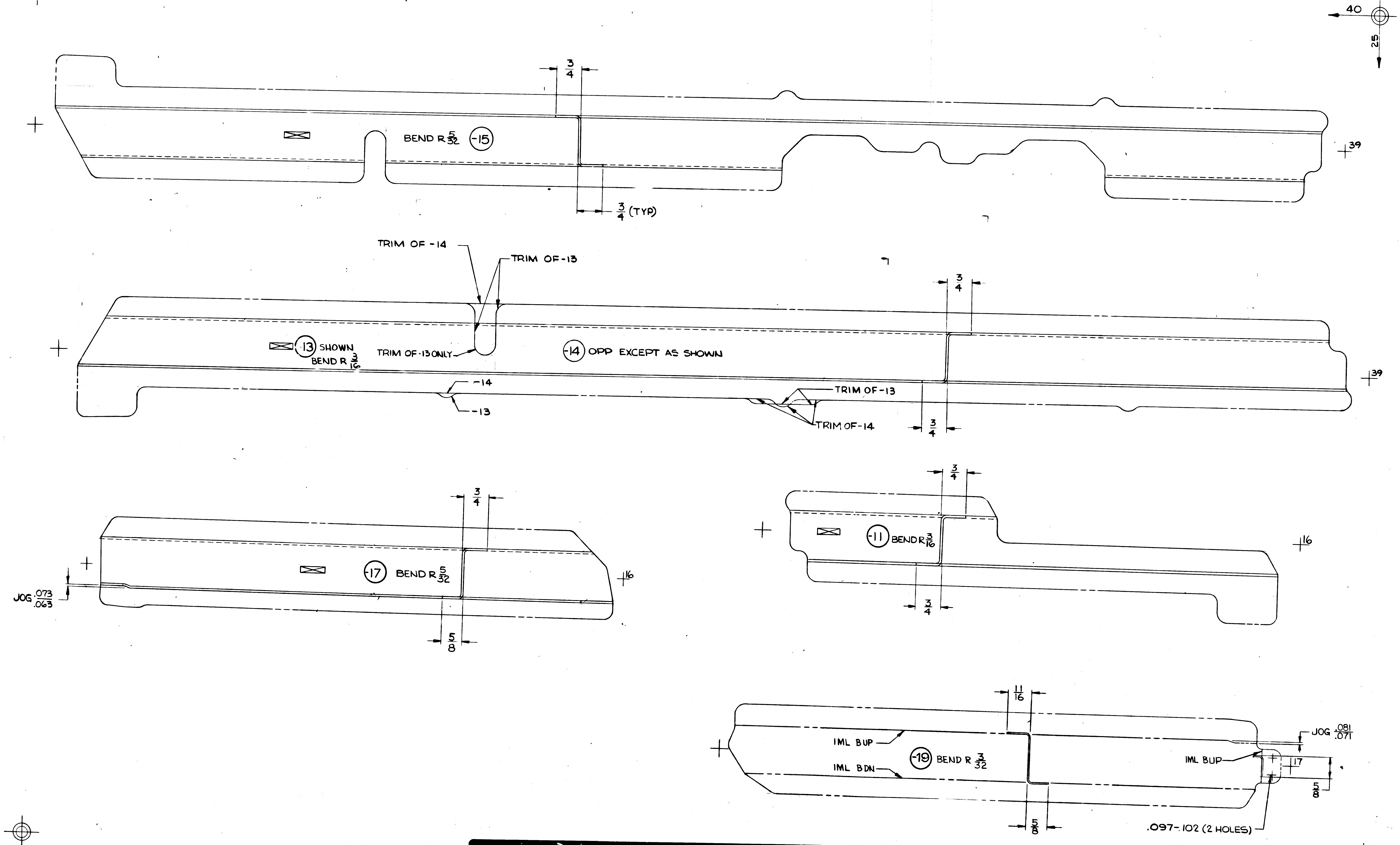
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCES ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.


40
25
3/4
BEND R 5/32
-15
+39
3/4 (TYP)
TRIM OF -14
TRIM OF -13
3/4
-13 SHOWN
BEND R 3/16
TRIM OF -13 ONLY
-14 OPP EXCEPT AS SHOWN
-14
-13
TRIM OF -13
TRIM OF -14
3/4
+39
3/4
-11
BEND R 3/16
+16
3/4
3/4
-17
BEND R 5/32
JOG .073/.063
+16
5/8
11/16
IML BUP
IML BDN
-19
BEND R 3/32
IML BUP
JOG .081/.071
.17
5/8
5/8
.097-.102 (2 HOLES)

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18739
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION 1

LDW280-18740

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11 (23)	1 EA
LM	LDW280-60540	LTA3D/R-1 (460)	1 EA
LM	LDW280-60540	LM-14 (44)	1 EA
↕	↕	LM-13 (43)	1 EA
↕	↕	LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60540	LM-10 (40)	1 EA

PART NO. LDW280-18740-11 & -13 | GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH								
SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 207 | JK(001) | ME-16 7/30/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890 PKG52

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	MASONE-5-13-69	RELIABILITY	—
LAYOUT BY	G BARNES		
CHECKED BY	D. FASS 7-22-69		
GR LEADER	Thorjussen 7-24-69		
VEH DES INT	7/26/69		
STRUCT	DK NM 7/26/69	PROJ ENGR	7/28/69
STRUCT		REL GROUP	B. Marsh 7/30/69
~~WEIGHTS~~	—		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE-FWD UPR DK-
INTERSTAGE BEAM

SIZE B | CODE IDENT NO. 26512 | LDW280-18740

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 6-25-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18740-13	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.045X7X27	NOTE4	88	
								LDW280-18740-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.045X7X34	NOTE4	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18740

SCALE NONE | SHEET 2.00

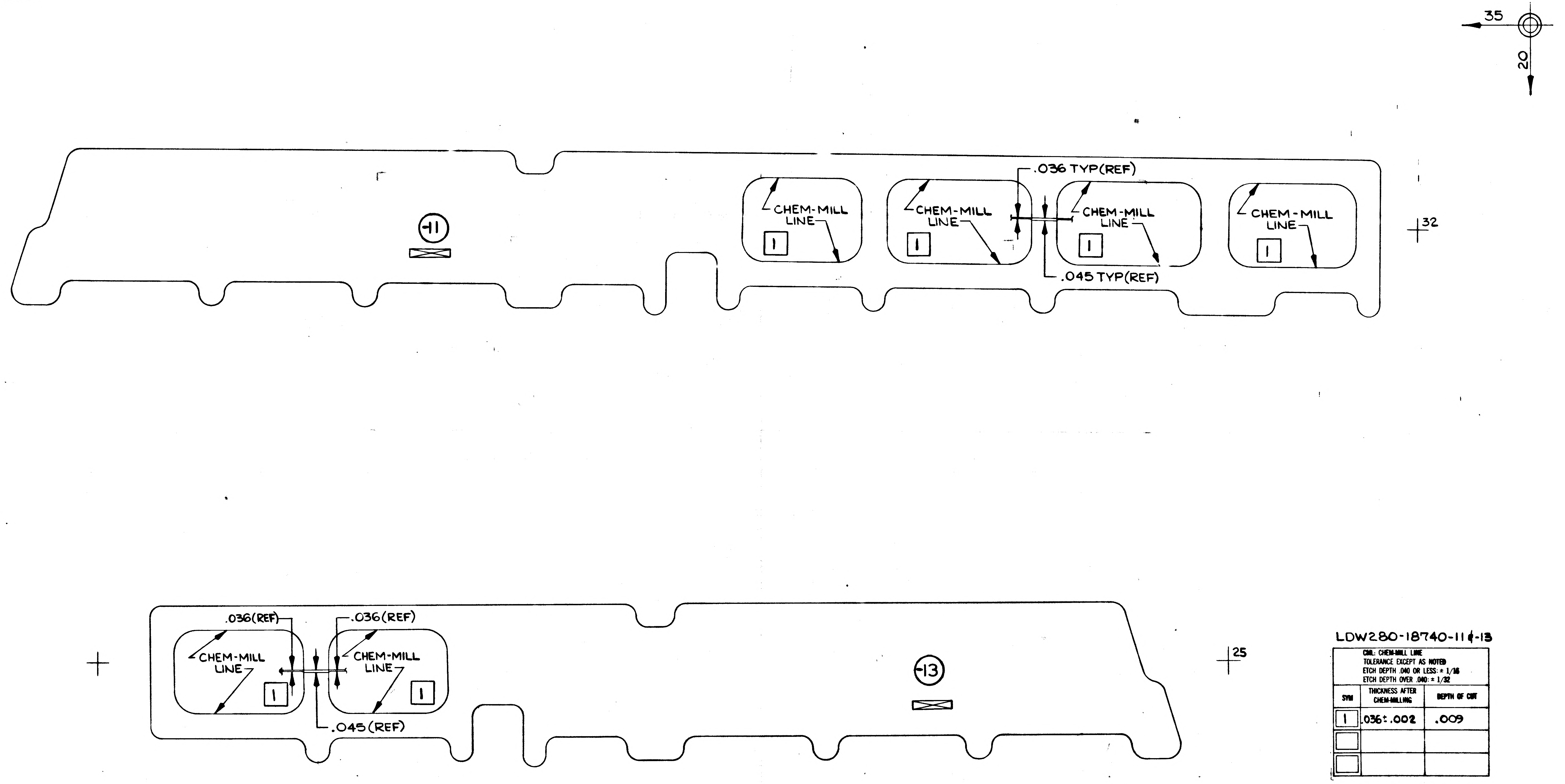
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ [illegible]	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. WEIGHT OF -11 CHEM-MILLED PANEL AFTER FINAL TRIM (BUT BEFORE PILOT HOLES ARE DRILLED) SHALL NOT EXCEED POUNDS.
3. WEIGHT OF -13 CHEM-MILLED PANEL AFTER FINAL TRIM (BUT BEFORE PILOT HOLES ARE DRILLED) SHALL NOT EXCEED POUNDS.
4. FABRICATE PER LPC280-43.


35
20
.036 TYP(REF)
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
CHEM-MILL LINE
1
-11
.045 TYP(REF)
32
.036(REF)
.036(REF)
CHEM-MILL LINE
CHEM-MILL LINE
1
.045(REF)
-13
25

LDW280-18740-11 & -13

CML: CHEM-MILL LINE TOLERANCE EXCEPT AS NOTED ETCH DEPTH .040 OR LESS: ± 1/16 ETCH DEPTH OVER .040: ± 1/32		
SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.036±.002	.009
☐		
☐		

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18740
SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1 2K

LDW280-18740

LDW280-18740

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO LDW280-18740	EO NO. A1
CONTROL INFO NO. LM-3-7048	

IN FLD

(REMOVE) NOTE 2, WT OF -11 CHEM-MILLED PNL AFTER FINAL
TRIM (BUT BEFORE PILOT HOLES ARE DRILLED)
SHALL NOT EXCEED POUNDS.

(REMOVE) NOTE 3, WT OF -13 CHEM-MILLED PNL AFTER FINAL
TRIM (BUT BEFORE PILOT HOLES ARE DRILLED)
SHALL NOT EXCEED POUNDS.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 52

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
WT. CONTROL NOTE NOT REQ'D REF LAV490-258.	IN FLD (FOR -11 & -13) REMOVED NOTES 2 & 3.	R (3) JK SB 9/23/69

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LM10(40) THRU LM14(44)		✓		NOT REQ'D	
		LTA-11(23)					
		LTA-3 DR/1 (460)					

APPROVED BY	FDR			BJT	JFJ	BM		
DATE	10/1/69			10-1-69	9-16-69	9-16-69	9/16/69	9/20/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	WEB, DESCENT STAGE, FWD UPR DK - INTERSTAGE BEAM	LDW280-18740	A1

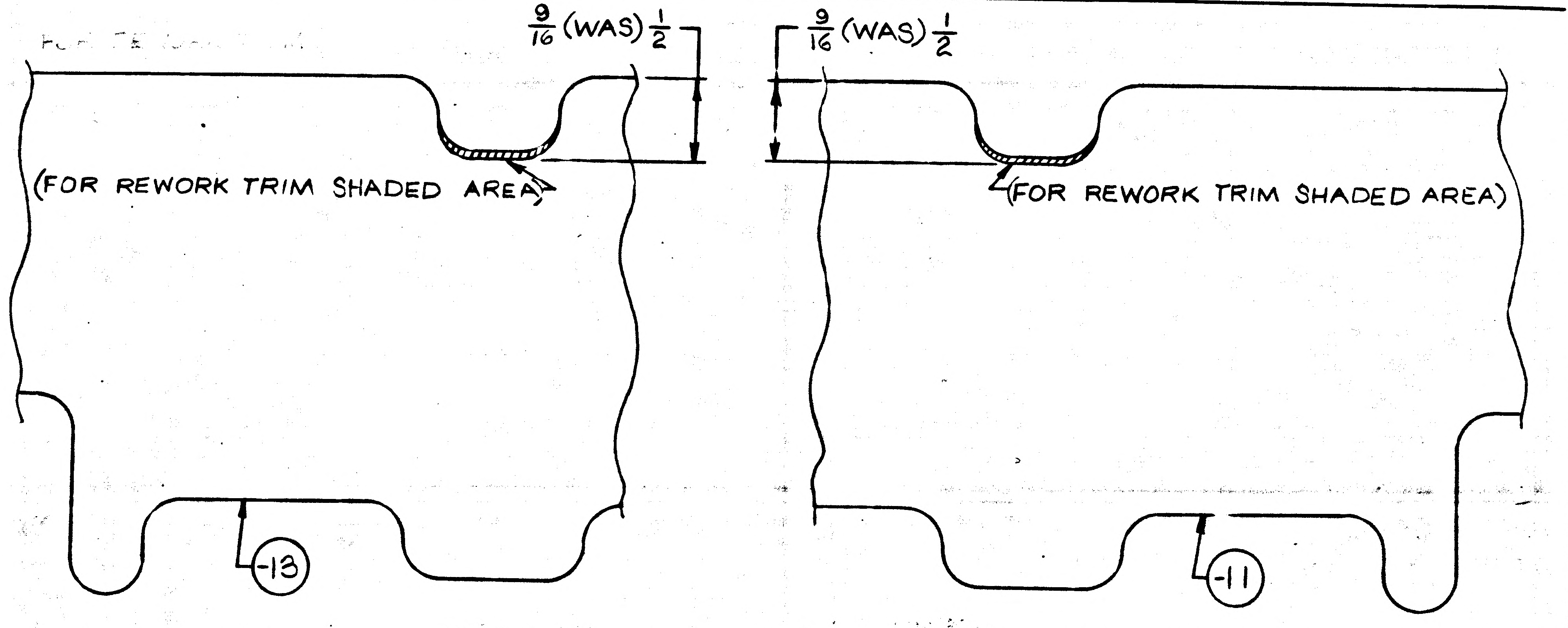
ISSUED BY VDE / M.D. REYES / X2151 SECTION VDI / P. THORJUSEN GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18740 | EO NO. A2
CONTROL INFO NO. LM-2-5635



TO BE LOFTED

FOR REWORK BRUSH ALODINE BARE SURFACES PER LSP-14-9010

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 52

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH FLANGE ON LDW280M-17407-3 CAPSTRIP AT NL

DESCRIPTION OF EO: FOR -11 & -13 IN FLD/DWG. REVISED TRIM

GAEC EO RELEASE: R (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44) LTA-11 (23) LTA-3D/R-1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	FNR				KC			
DATE	11/23/69			10-23-69	10/16/69	10/16/69	10/23/69	
	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: WEB~D/S~FWD UPPER DECK INTERSTAGE BEAM

DRAWING NO. LDW280-18740 | EO NO. A2

ISSUED BY LIAISON J. MALONEY 10/16/69 X3604
SECTION V.D.I.
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18741

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11 (23)	1
		LTA-3DR/1(460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60541	LM-10 (40)	1
PART NO. LDW280-18741-11		GAEC SCH NO. 50-5	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 | VK(001) ME-16 8/29/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY E.GREINER T.MACAULAY

LAYOUT BY G.BELEV 8-26

CHECKED BY L.ATLAS 7-31-69

GR LEADER 8/26/69

VEH DES INT Thorgusen 8-26-69

STRUCT WPB 8/29/69

STRUCT 8/29/69

PROJ ENGR 8/29/69

REL GROUP 8/29/69

Ⓑ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE LOWER DECK
+Y

SIZE B | CODE IDENT NO. 26512 | LDW280-18741

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 8/21/69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18741-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050X57X59	SEE	NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18741

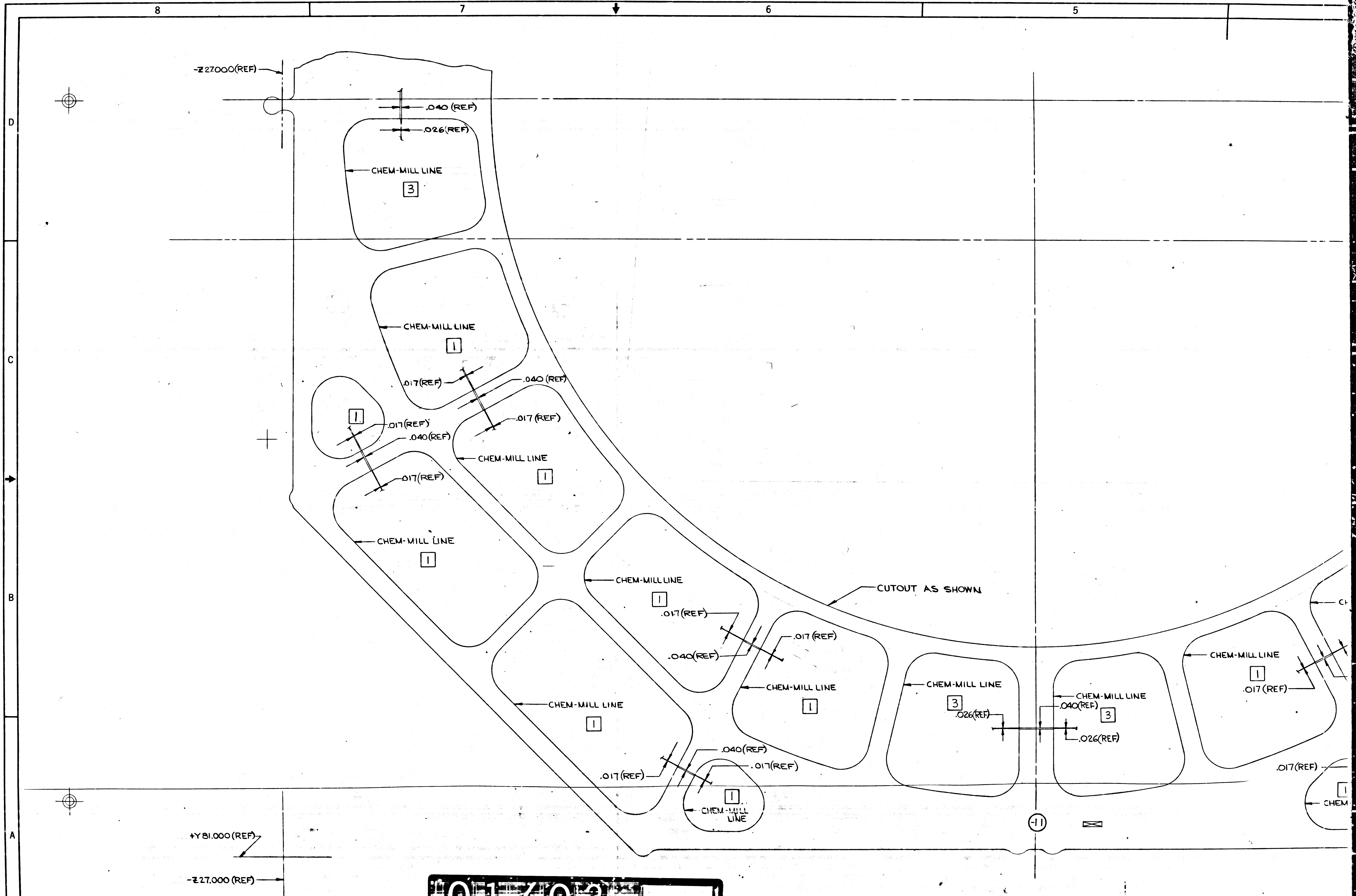
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



8
7
6
5
D
C
B
A
-Z27.000(REF)
.040 (REF)
.026(REF)
CHEM-MILL LINE
3
CHEM-MILL LINE
1
.017(REF)
.040 (REF)
1
.017(REF)
.040(REF)
.017(REF)
.017(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.017(REF)
.040(REF)
CUTOUT AS SHOWN
.017 (REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
3
.026(REF)
CHEM-MILL LINE
.040(REF)
3
.026(REF)
CHEM-MILL LINE
1
.017(REF)
CHEM-MILL LINE
1
.040(REF)
.017(REF)
.017(REF)
1
CHEM-MILL LINE
.017(REF)
CHEM-
CH
-11
+Y81.000(REF)
-Z27.000 (REF)

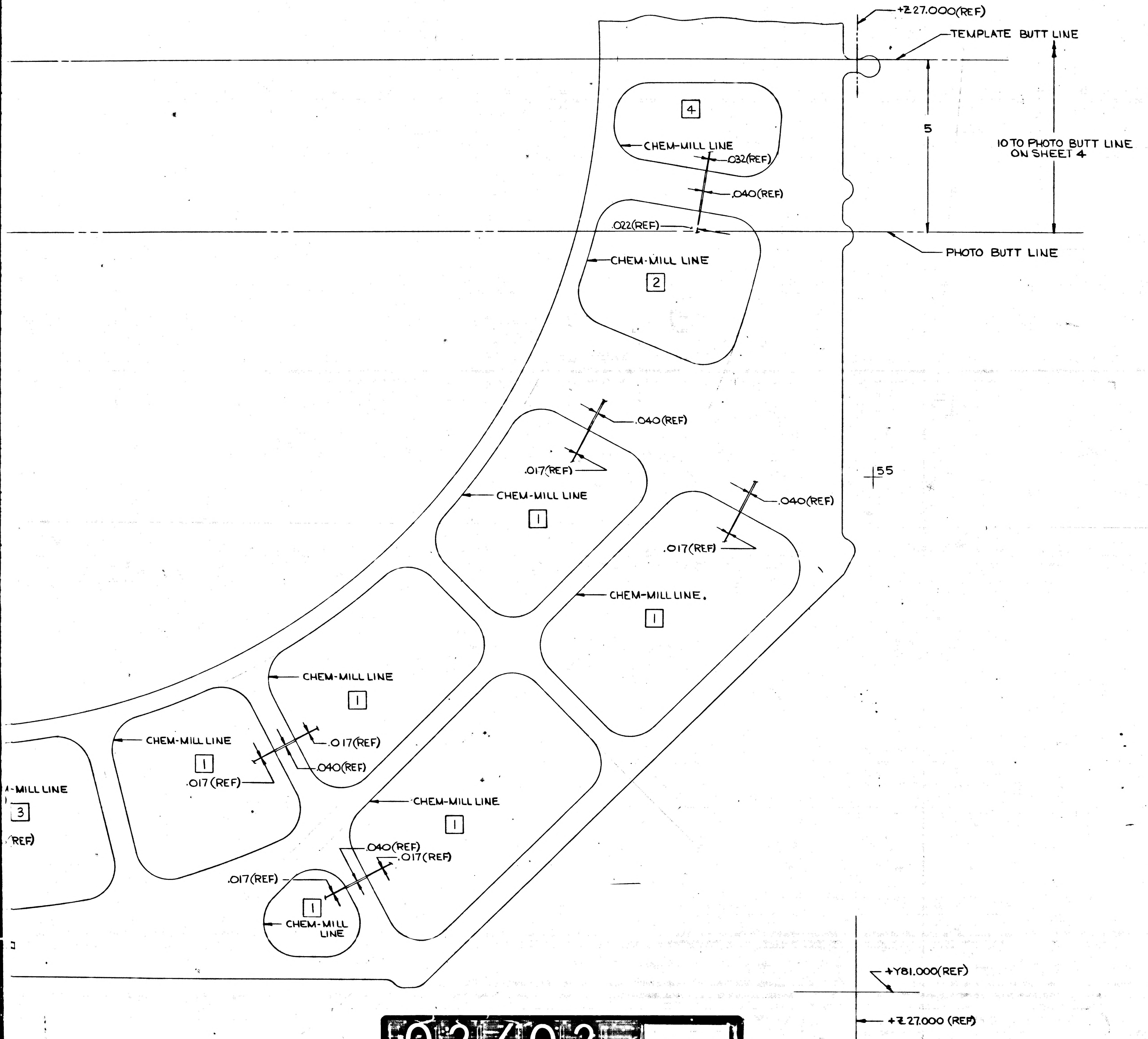
01/02

NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18741		3

FRAME 1 ← | FRAME 2 →

[illegible]



+Z 27.000(REF)
TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 4
4
CHEM-MILL LINE
.032(REF)
.040(REF)
.022(REF)
CHEM-MILL LINE
2
PHOTO BUTT LINE
.040(REF)
.017(REF)
CHEM-MILL LINE
1
55
.040(REF)
.017(REF)
CHEM-MILL LINE.
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.017(REF)
.040(REF)
.017(REF)
-MILL LINE
3
(REF)
CHEM-MILL LINE
1
.040(REF)
.017(REF)
.017(REF)
1
CHEM-MILL LINE
+Y81.000(REF)
+Z 27.000 (REF)

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS EXCEPT AS NOTED.
2. FABRICATE PER LPC280-43.

80
2.5

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18741-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.017 ± .002	.023 (REF)
2	.022 ± .002	.018 (REF)
3	$.026^{+.003}_{-.002}$	.014 (REF)
4	.032 ± .003	.008 (REF)

02/02 NAS 9-1100

FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.

~~UNLESS OTHERWISE SPECIFIED~~			CONTRACT NO.
~~DIMENSIONS IN INCHES~~			
LINEAR TOL	.XX	± .03	DRAWN BY
	.XXX	± .010	LAYOUT BY
ANGULAR TOL		± 0°30'	~~CHECKED BY~~
~~TOL ON LOFTED DELINEATIONS IS~~			GR LEADER
			REL GROUP
			PROJ ENGR
			~~GOVT APPD~~

~~GRUMMAN AIRCRAFT ENGINEERING CORPORATION~~
~~BETHPAGE, NEW YORK 11714~~

SIZE	CODE IDENT NO.	
J	26512	LDW280-18741

SCALE FULL SHEET 3 OF

2 FR

1 FOR PHOTO REPRODUCTION

K2

DISTR. LIST #

PRINTING INFO ONLY
DWG WDP 9.4 Y 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

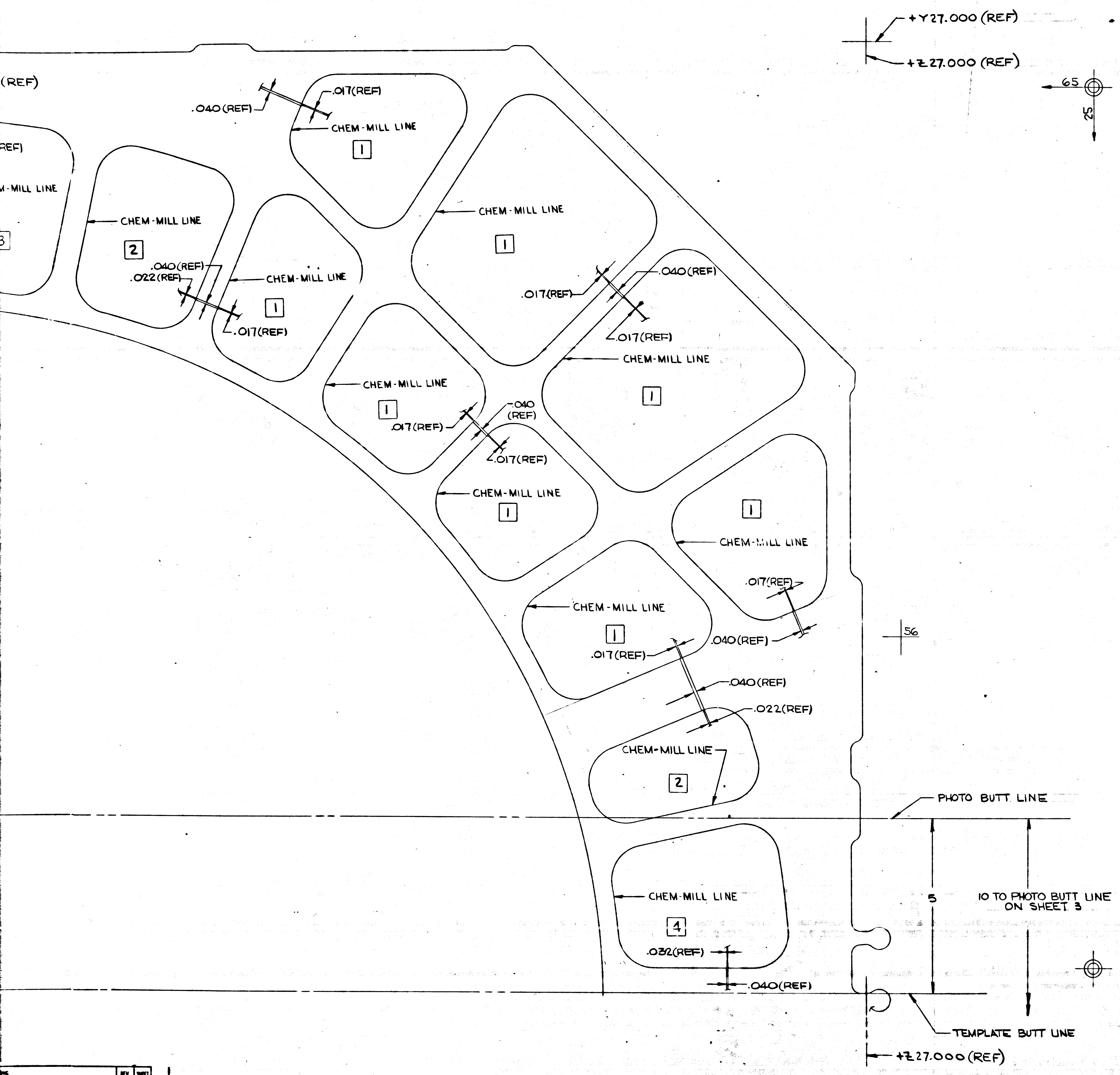
LDW280-18741 REV SHEET 3

FRAME 1 FRAME 2

LDW280-18741

LDW280-18741

TRIM OK [illegible]
OVERLAY OK [illegible]



(REF)
REF)
-MILL LINE
3
.040 (REF)
.017(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
2
.040(REF)
.022(REF)
CHEM-MILL LINE
1
.017(REF)
CHEM-MILL LINE
1
.017(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.017(REF)
.040 (REF)
.017(REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
.017(REF)
CHEM-MILL LINE
1
.017(REF)
.040(REF)
.040(REF)
.022(REF)
CHEM-MILL LINE
2
CHEM-MILL LINE
4
.032(REF)
.040(REF)
+Y27.000 (REF)
+Z27.000 (REF)
65
25
56
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 3
TEMPLATE BUTT LINE
+Z27.000 (REF)

02/02 NAS 9-1100

ZONE	LTR	REVISIONS DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES
LINEAR TOL .XX ± .03
.XXX ± .010
ANGULAR TOL ± 0°30'
TOL ON LOFTED DELINEATIONS IS

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE J
CODE IDENT NO. 26512
LDW280-18741
0
SCALE FULL
SHEET 4.00
2FR
1 FOR PHOTO REPRODUCTION
K2

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 88
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ FT
½ SIZE SHEET AREA (¼ OF FULL)= 6.5 SQ FT

LDW280-18741 F
LDW280-18741

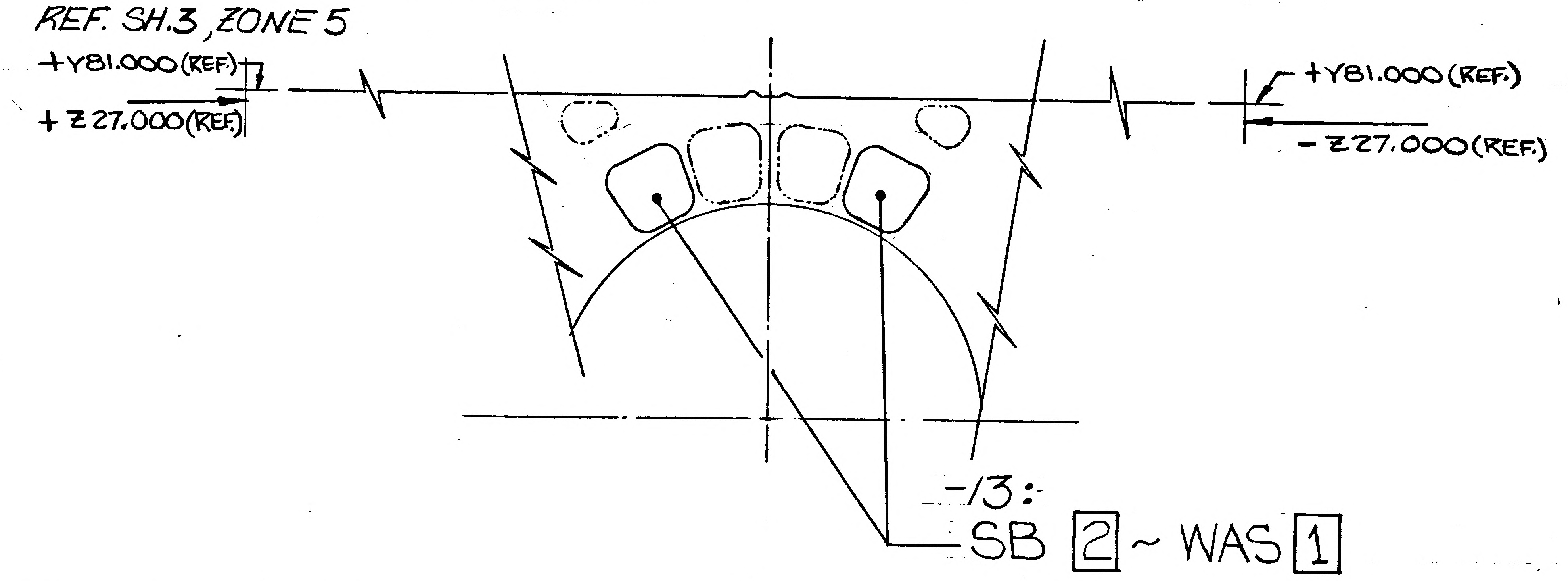
LDW280-18741 | REV | SHEET 4
FRAME 1 | FRAME 2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18741		EO NO. A1
CONTROL INFO NO. LDW280B8885		

REMOVE ~ -11, ADD ~ -13 IDENTICAL TO -11 EXCEPT AS NOTED
-13 QTY. & N/A SAME AS -11
REF. SH.3, ZONE 5



-13:
SB $\boxed{2}$ ~ WAS $\boxed{1}$

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3994 PKG 69

REASON FOR EO: DESIGN VEHICLE FOR 37,000 LB GROSS WEIGHT ~ CDR LMMP RFA 2.11-1A

DESCRIPTION OF EO: REMOVED: -11 ADDED: -13

GAEC EO RELEASE (5) LR 9-17-69; JK 9/17/69

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		
	LTA-3 DR/2 (460), LTA-11(23)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	FDK							
DATE	9/17/69			9/17/69	9/16/69		9/17/69	9-18-69
	VDI							

PRIORITY: C
DRAWING TITLE: WEB ~ DESCENT STAGE +Y LOWER DECK
DRAWING NO.: LDW280-18741
EO NO.: A1

CDR 9/19/69
ISSUED BY C.M. GREEN / G. HANSMANN X86047 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18742

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NC.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LTA-11 (23)	1
	LDW280-60542	LTA-3DR/1 (46)	1
	LDW280-60542	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60542	LM-10 (40)	1
PART NO. LDW280-18742-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO.	JX(001)		17-50-39-5
207	ME-16-8/29/9		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3890

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W.CONROY E.SICK 5-26 69
LAYOUT BY G. BELEV 8-26
CHECKED BY Szalwinski 8-5-69
GR LEADER 8/26/69
VEH DES INT Thompson 8-26-69
STRUCTURES
STRUCTURES 8/29/69
PROJ ENGR 8/29/69
REL GROUP 8/29/69

(7) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE -Y LOWER DECK

SIZE B
CODE IDENT NO. 26512
LDW280-18742
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 8/21/69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18742-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050×58×59	NOTE 2		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : LPC 19-2 (GRUMMAN) LPC 19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

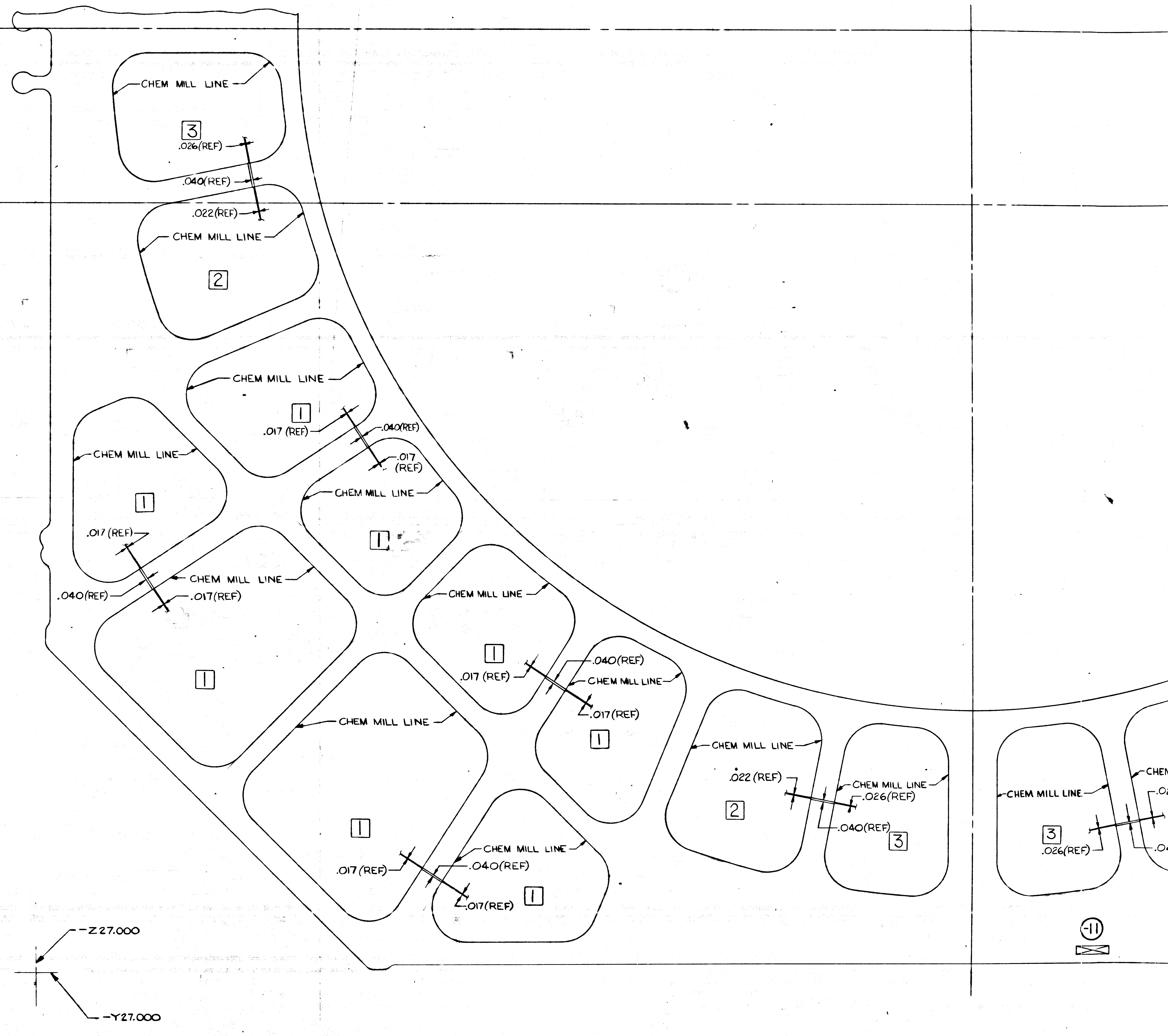
SIZE B
CODE IDENT NO. 26512
LDW280-18742
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

01 X 02 **NAS 9-1100**

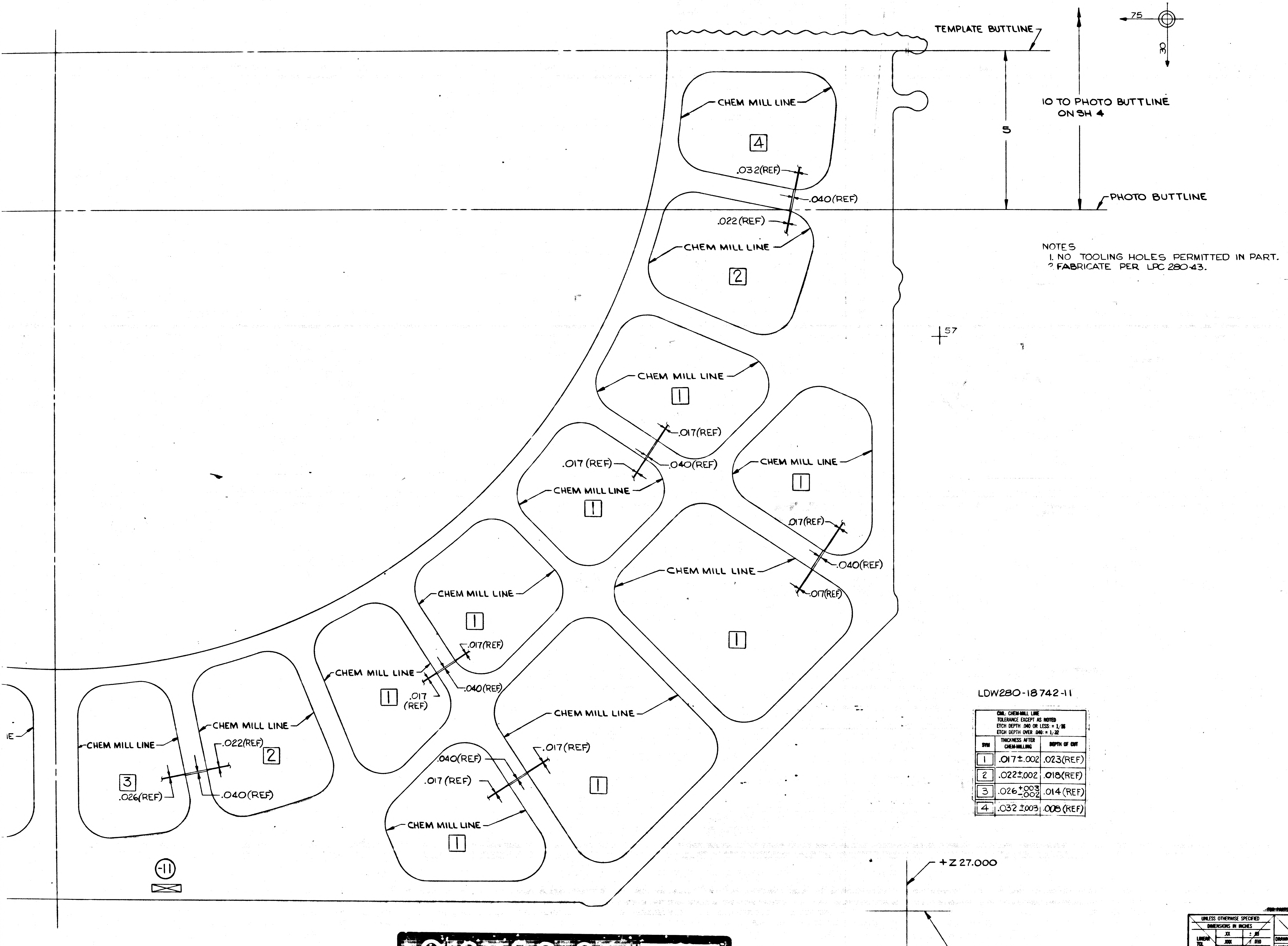

CHEM MILL LINE
3
.026(REF)
.040(REF)
.022(REF)
CHEM MILL LINE
2
CHEM MILL LINE
1
.017 (REF)
.040(REF)
.017 (REF)
CHEM MILL LINE
1
CHEM MILL LINE
1
.017 (REF)
.040(REF)
CHEM MILL LINE
.017(REF)
1
CHEM MILL LINE
1
.017 (REF)
.040(REF)
CHEM MILL LINE
.017(REF)
1
CHEM MILL LINE
1
.017(REF)
CHEM MILL LINE
.040(REF)
.017(REF)
1
CHEM MILL LINE
.022 (REF)
2
CHEM MILL LINE
.026(REF)
.040(REF)
3
CHEM MILL LINE
3
.026(REF)
CHEM
-11
-Z27.000
-Y27.000

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18742		3

ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓



TEMPLATE BUTTLINE
PHOTO BUTTLINE
10 TO PHOTO BUTTLINE ON SH 4
5
75
30
57
CHEM MILL LINE
4
2
1
3
.032(REF)
.040(REF)
.022(REF)
.017(REF)
.026(REF)
.017 (REF)
-11
+Z 27.000
-Y27.000

NOTES
1. NO TOOLING HOLES PERMITTED IN PART.
2. FABRICATE PER LPC 280-43.

LDW280-18742-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.017±.002	.023(REF)
2	.022±.002	.018(REF)
3	$.026^{+.003}_{-.002}$	.014(REF)
4	.032±.003	.008(REF)

02/02 NAS 9-1100

LDW280-18742 REV SHEET 3

FRAME 1 FRAME 2

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES LINEAR TOL .XX ± .03 .XXX ± .010 ANGULAR TOL ± 0°30' TOL ON LOFTED DELINEATIONS IS	CONTRACT NO. DRAWN BY LAYOUT BY CHECKED BY GR LEADER REL GROUP PROJ ENGR GOVT APPD	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714 SIZE J CODE IDENT NO. 26512 LDW280-18742 SCALE FULL SHEET 3.0 OF

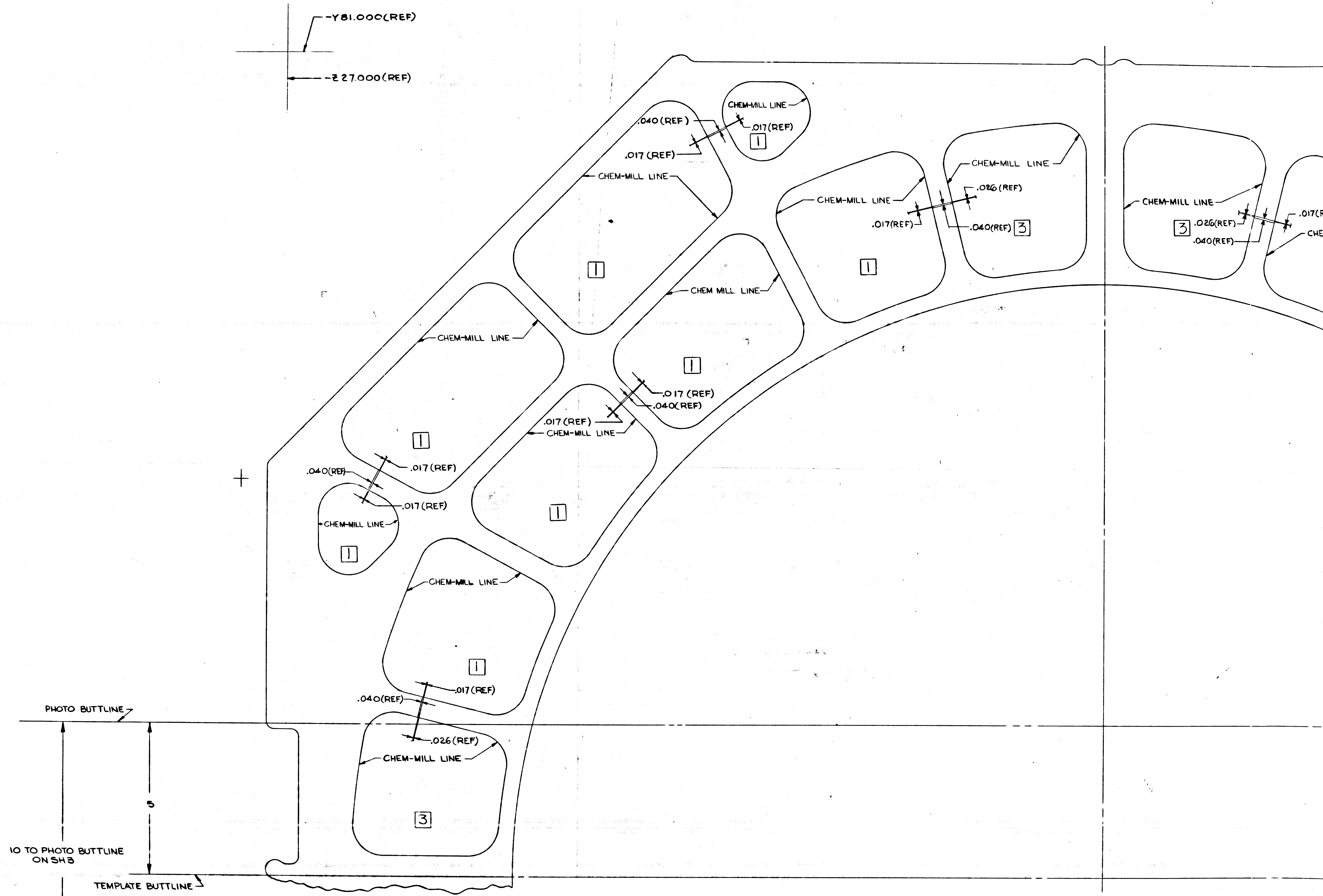
K2

1 FOR PHOTO REPRODUCTION 2FR

DISTR. LST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

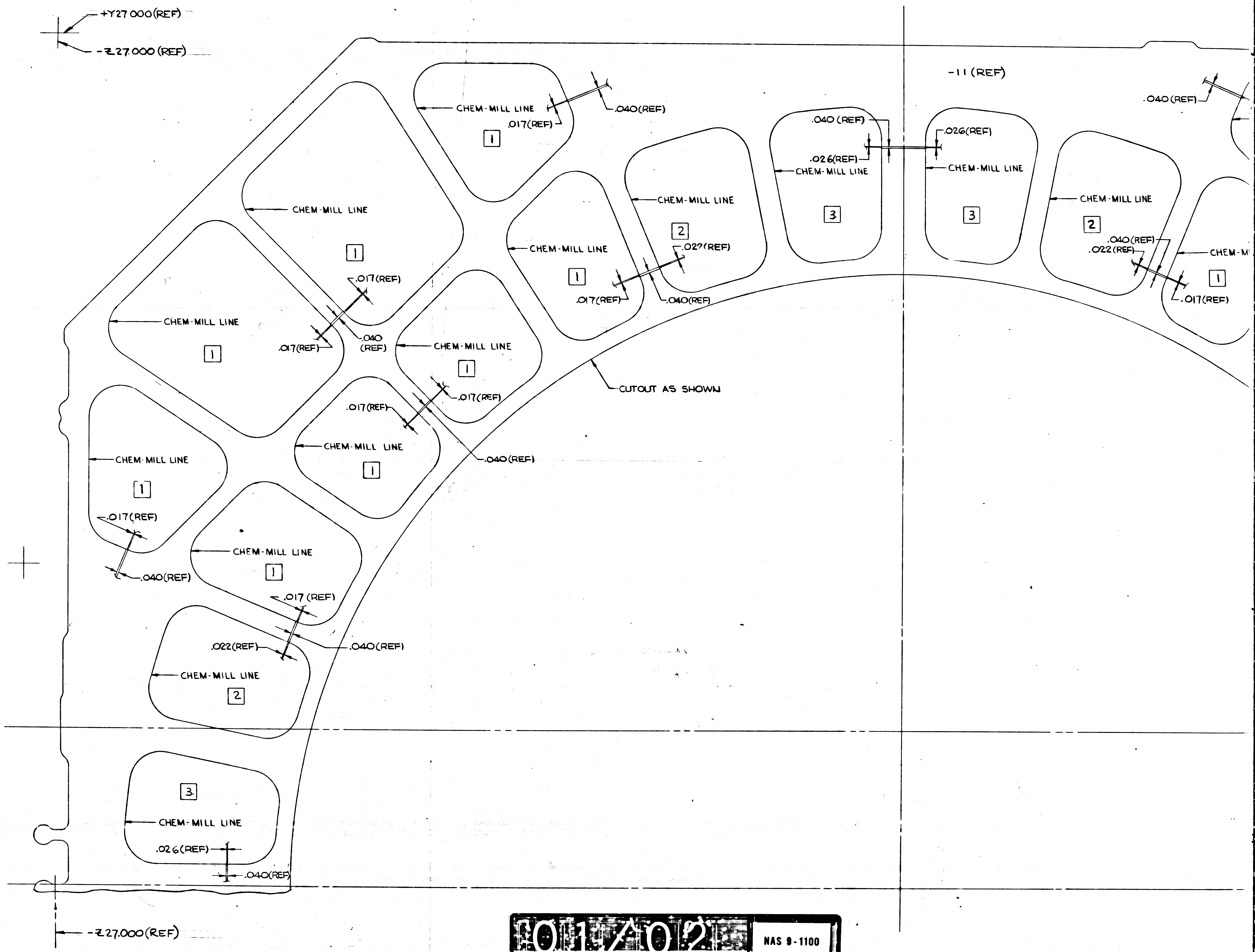
LDW280-18742


-Y81.000(REF)
-Z27.000(REF)
CHEM-MILL LINE
.017(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
CHEM-MILL LINE
.026(REF)
.017(REF)
.040(REF)
3
CHEM-MILL LINE
CHEM-MILL LINE
3
.026(REF)
.040(REF)
.017(R
CHE
1
1
1
CHEM MILL LINE
CHEM-MILL LINE
1
.017(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
1
.040(REF)
.017(REF)
.017(REF)
CHEM-MILL LINE
1
1
CHEM-MILL LINE
1
.040(REF)
.017(REF)
.026(REF)
CHEM-MILL LINE
3
PHOTO BUTTLINE
5
10 TO PHOTO BUTTLINE ON SH 3
TEMPLATE BUTTLINE
8
7
6
5
H
G
F
E

01/02 NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18742		4

FRAME 1 FRAME 2

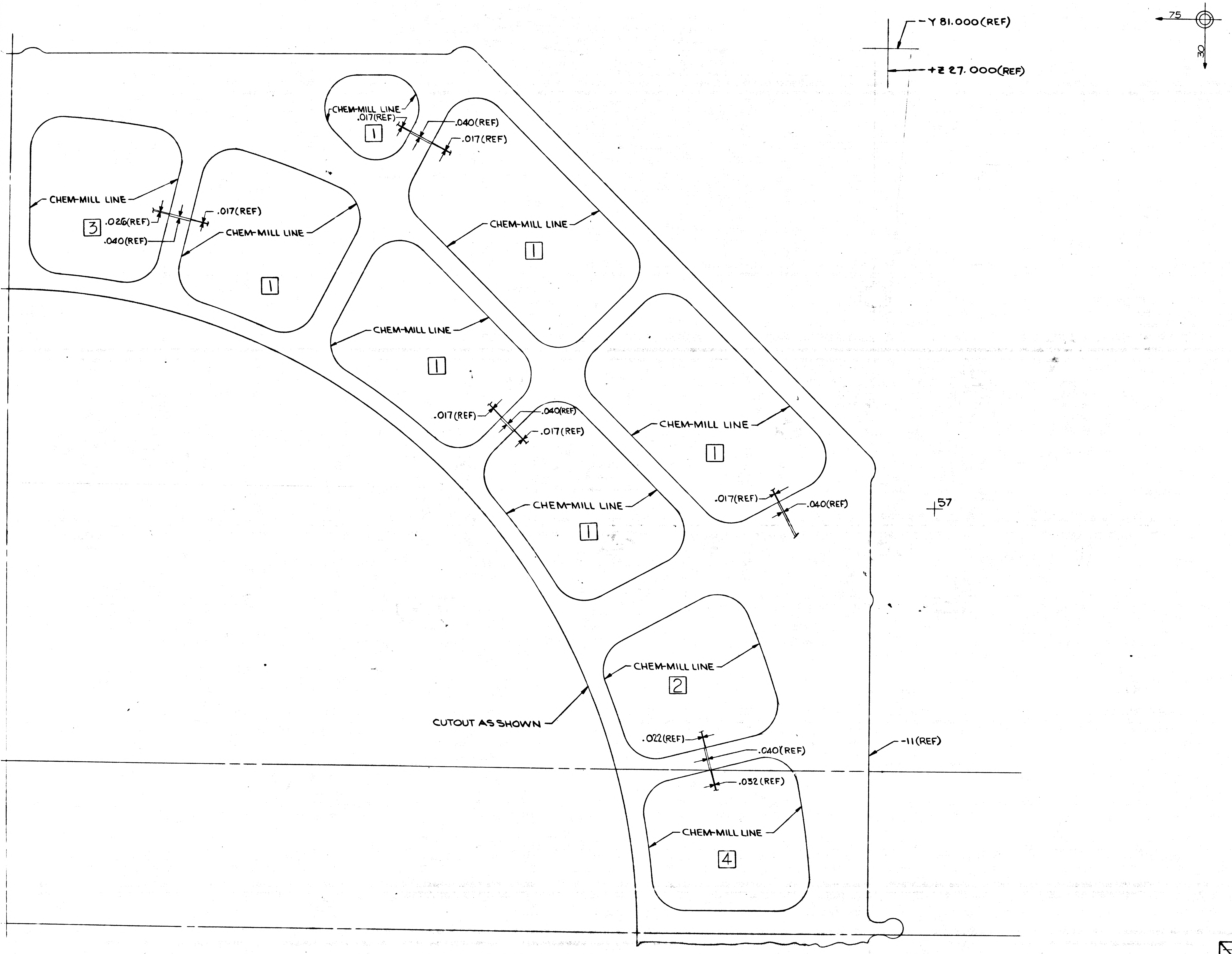

+Y27.000(REF)
-Z27.000(REF)
-11 (REF)
CHEM-MILL LINE
.017(REF)
.040(REF)
1
.040 (REF)
.026(REF)
3
2
.022(REF)
.027(REF)
.040
(REF)
CUTOUT AS SHOWN
.026(REF)
-Z27.000(REF)

01/02

NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18741		4

FRAME 1 FRAME 2


-Y 81.000(REF)
+Z 27.000(REF)
75
30
CHEM-MILL LINE
.017(REF)
1
.040(REF)
.017(REF)
CHEM-MILL LINE
3
.026(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.017(REF)
.040(REF)
.017(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.017(REF)
.040(REF)
57
CHEM-MILL LINE
2
CUTOUT AS SHOWN
.022(REF)
.040(REF)
.032(REF)
-11(REF)
CHEM-MILL LINE
4

ZONE	LTR	~~REVISIONS~~ DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

LDW280-18742

LDW280-18742

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		
LINEAR TOL	.XX	±.03
	.XXX	±.010
ANGULAR TOL		±0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18742

SCALE FULL SHEET 4.00

K2

1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

DWG NO LDW280-18742 REV SHEET 4

FRAME 1 FRAME 2

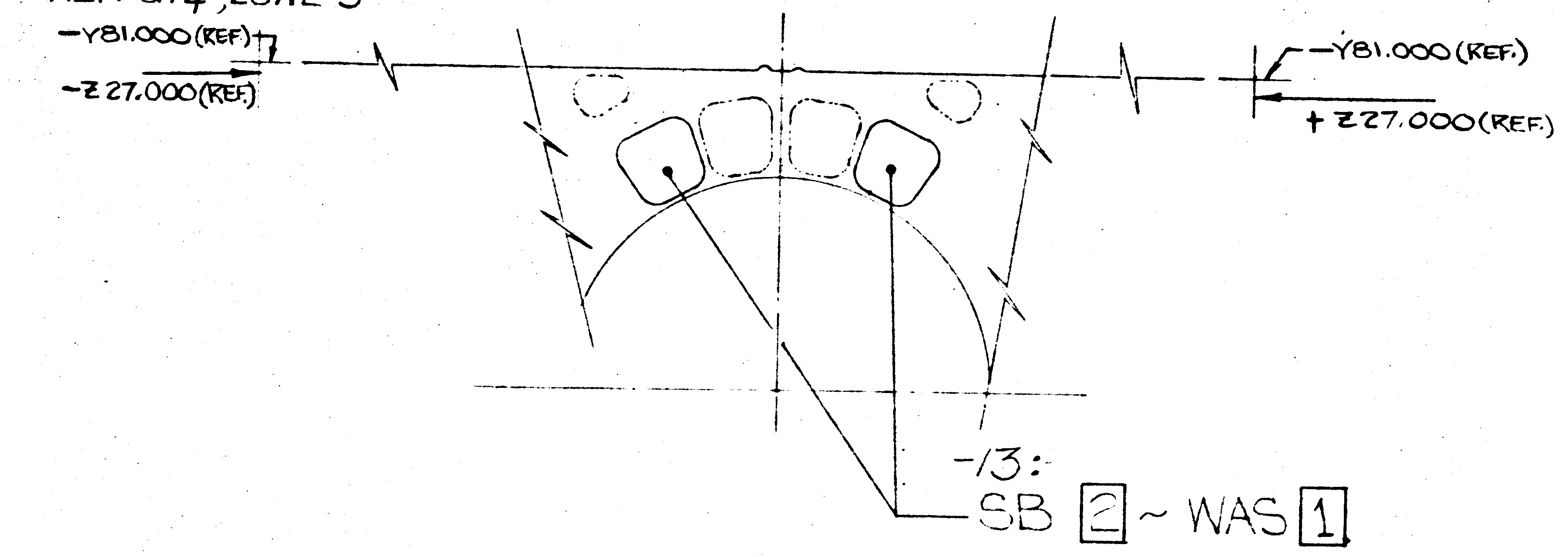
02/02 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18742
EO NO. A1
CONTROL INFO NO. LDW280B8886

REMOVE ~ -11, ADD ~ -13 IDENTICAL TO -11 EXCEPT AS NOTED
-13 QTY. & N/A SAME AS -11
REF. SH 4, ZONE 5



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PKG 69

DESIGN VEHICLE FOR 37,000 LB GROSS WT. ~ CDR LMMP ~ RFA 2.11-1A

DESCRIPTION OF EO
REMOVED: -11
ADDED: -13

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-14(44)		
	LTA-3 DR/2(460), LTA-11(23)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP -11

APPROVED BY	F.N.K.				WPB				
DATE	9/17/69			9/17/69	9/17/69		9/17/69	9-17-69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

GAEC EO RELEASE (5) 13
LR 9-17-69
JK 9/17/69

PRIORITY C
DRAWING TITLE: WEB ~ DESCENT STAGE -Y LOWER DECK
DRAWING NO LDW280-18742
EO NO. A1

CDR 7/19/69
ISSUED BY C.M. GREEN / G. HANSMANN X86047 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18743

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11(23)	1
		LTA3DR11(460)	1
		LM 14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60543	LM 10(40)	1
PART NO. LDW280-18743-11		GAEC SCH NO. 50-5	

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00				4.00				
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO	
LAST DASH NO. USED	-11	PRIM NO.	JK(001)
		207	ME-16 8/29/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. MASONE 7-22-69
LAYOUT BY	G. BELEV 8-26
CHECKED BY	J.D. COBB 7-29-69
GP. LEADER	8/26/69
VEH DES INT	Thompson 8-26-69
STRUCT	
STRUCT	8/26/69
PROJ ENGR	8/29/69
REL GROUP	8/29/69

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE - LOWER DECK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18743
SCALE	NONE	SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 8/21/69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18743-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075-T6	.050 x 57 x 59	SEE	NOTE	2

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH: LPC-19-2 (GRUMMAN) LPC-19-3 (VENDOR)

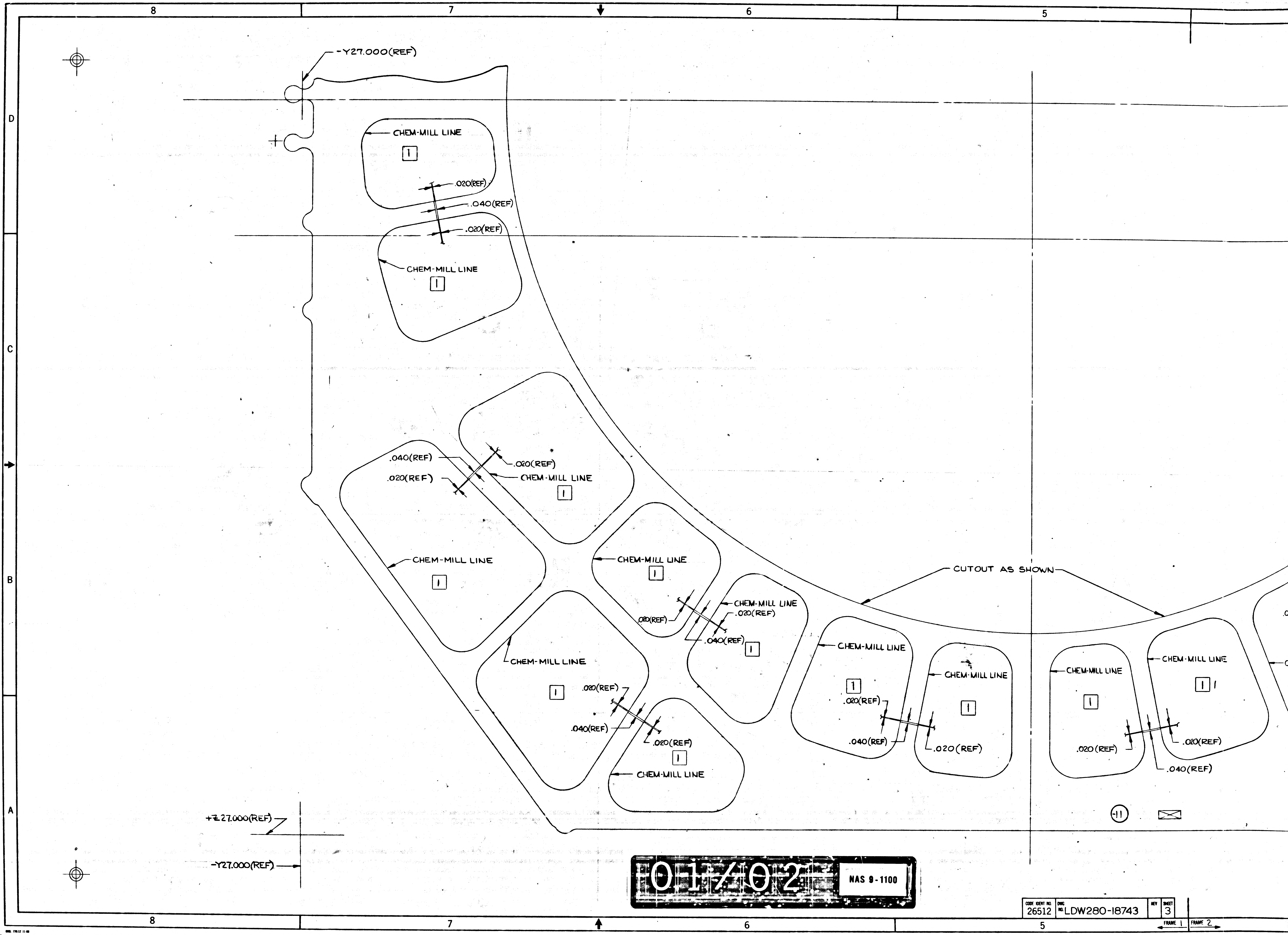
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18743
SCALE NONE		SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



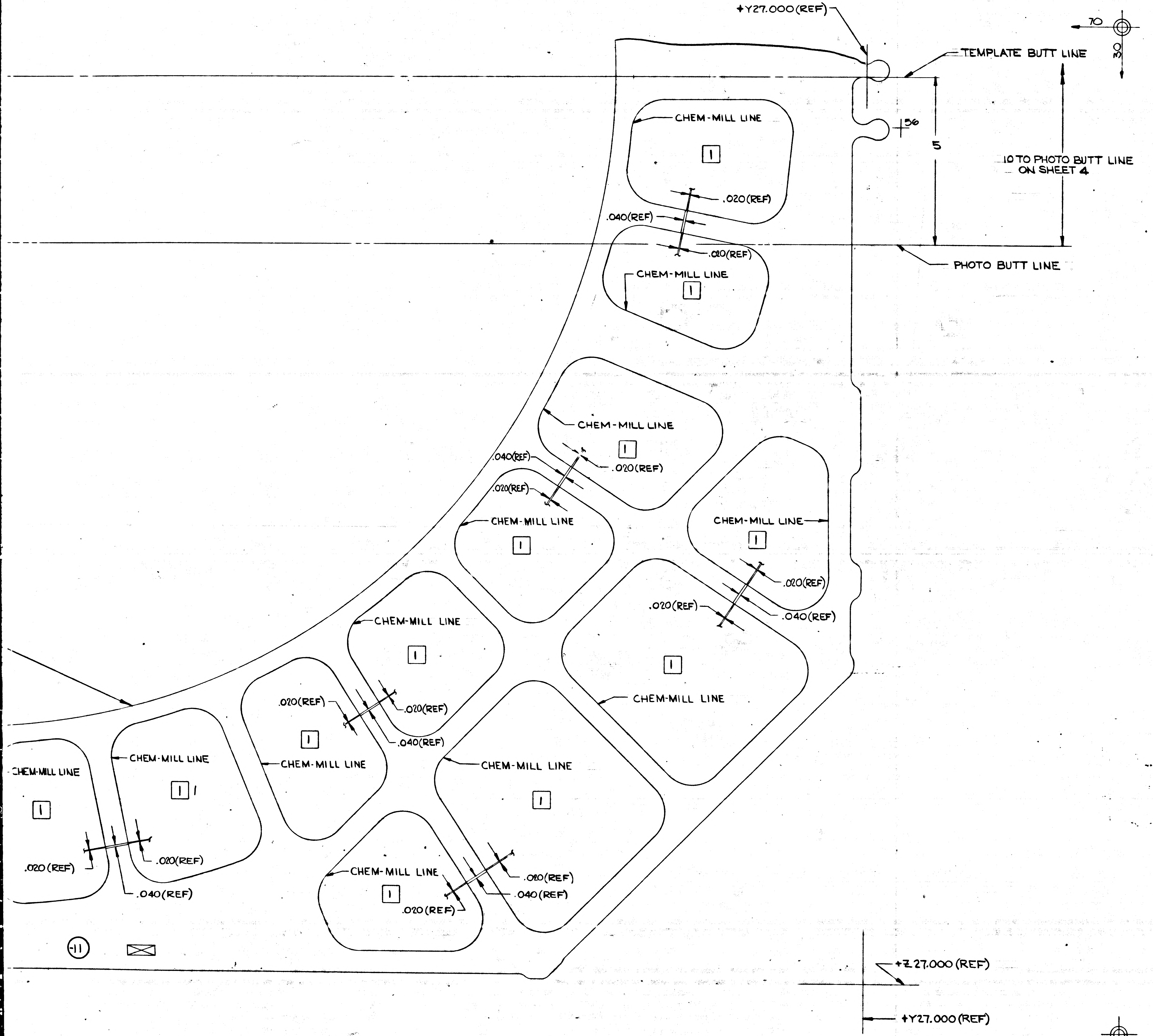
8
7
6
5
D
C
B
A
-Y27.000(REF)
CHEM-MILL LINE
1
.020(REF)
.040(REF)
.020(REF)
CHEM-MILL LINE
1
.040(REF)
.020(REF)
.020(REF)
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
1
.020(REF)
CHEM-MILL LINE
.020(REF)
.040(REF)
1
CHEM-MILL LINE
1
.020(REF)
.040(REF)
.020(REF)
1
CHEM-MILL LINE
CUTOUT AS SHOWN
CHEM-MILL LINE
1
.020(REF)
.040(REF)
CHEM-MILL LINE
1
.020(REF)
CHEM-MILL LINE
1
.020(REF)
CHEM-MILL LINE
1
.020(REF)
.040(REF)
+Z27.000(REF)
-Y27.000(REF)
11

01/02

NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18743		3

FRAME 1 FRAME 2



NOTES
1 NO TOOLING HOLES PERMITTED IN PART.
2 FRABRICATE PER LPC 280-43

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCES ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18743-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.020±.002	.020(REF)

02/02 NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL	.XX ± .03 .XXX ± .010	DRAWN BY	
		LAYOUT BY	
ANGULAR TOL	± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS		GR LEADER	
		REL GROUP	
		PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18743
		GOVT APPD	SCALE FULL · SHEET 3 OF 00

1 FOR PHOTO REPRODUCTION K2

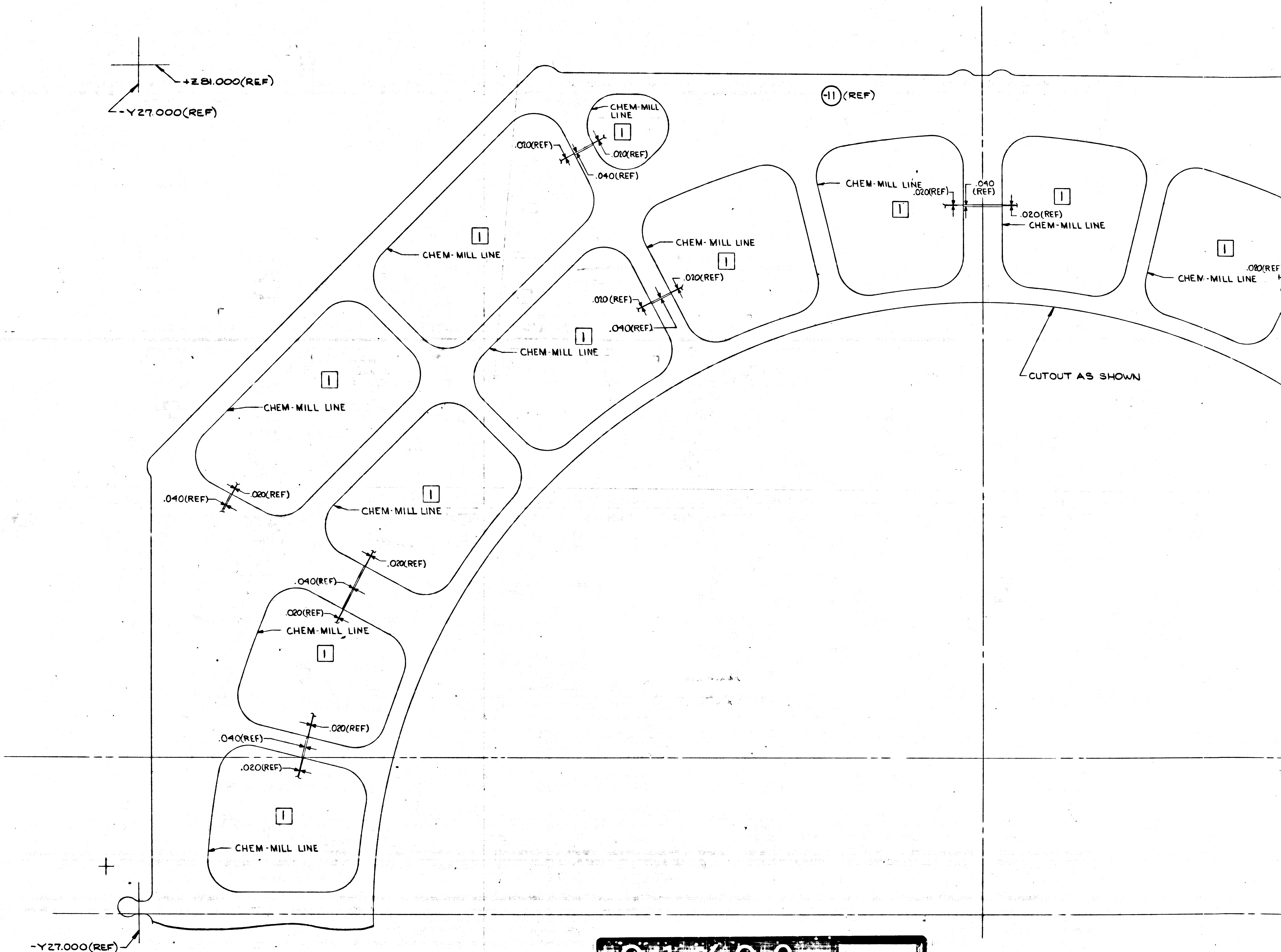
2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 88
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

LDW280-18743	REV	SHEET 3

FRAME 1 FRAME 2


+Z81.000(REF)
-Y27.000(REF)
-11 (REF)
CHEM-MILL LINE
1
.020(REF)
.040(REF)
.040 (REF)
CUTOUT AS SHOWN
-Y27.000(REF)

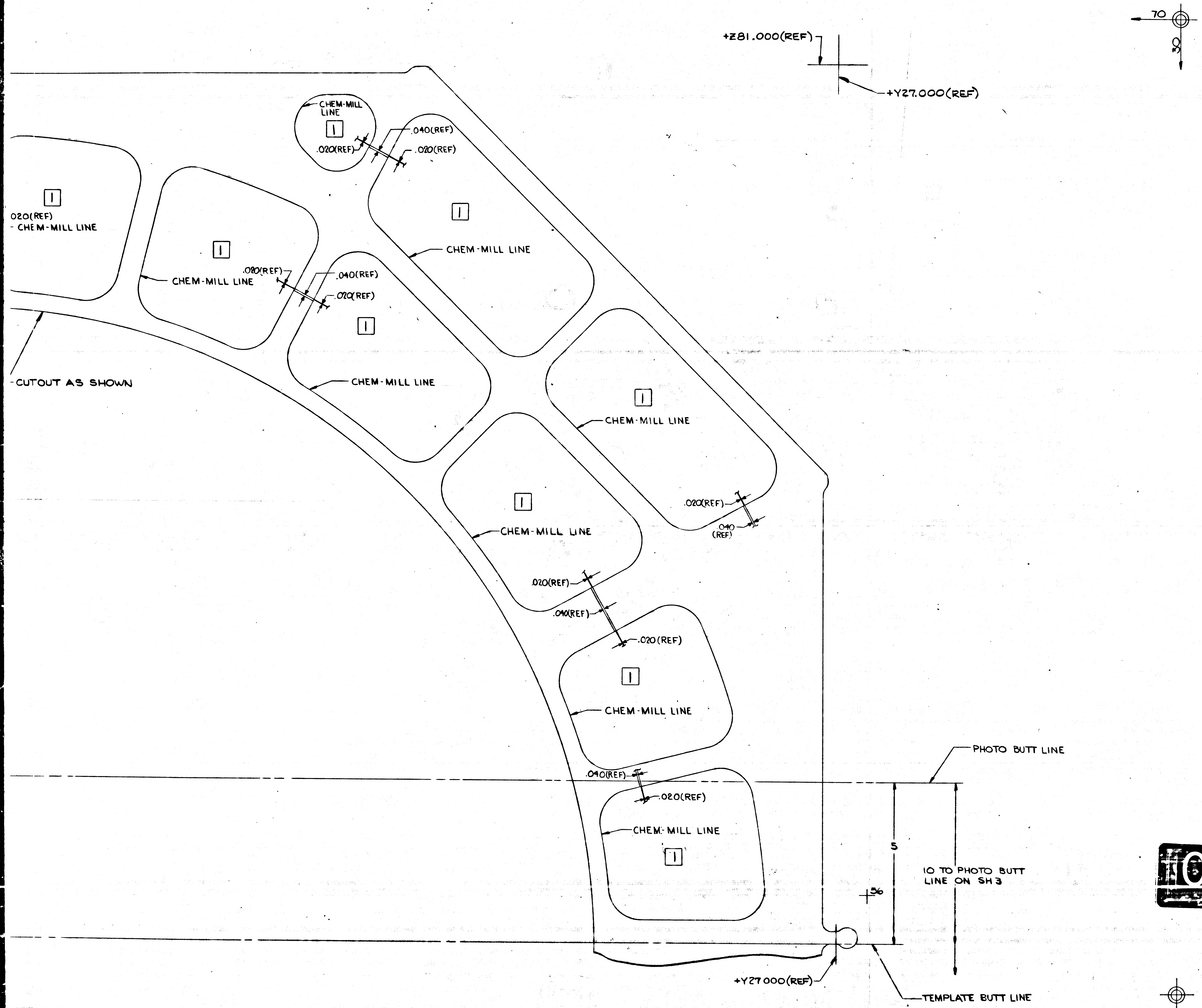
01/02

NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18743		4

4 3 2 1

ZONE	LTR	REVISIONS DESCRIPTION	EFF-CODE	MODEL	DATE	APPROVED


70
30
+Z81.000(REF)
+Y27.000(REF)
CHEM-MILL LINE
1
.020(REF)
.040(REF)
.020(REF)
1
.020(REF)
- CHEM-MILL LINE
1
CHEM-MILL LINE
1
CHEM-MILL LINE
.020(REF)
.040(REF)
.020(REF)
1
CHEM-MILL LINE
-CUTOUT AS SHOWN
1
CHEM-MILL LINE
.020(REF)
.040 (REF)
1
CHEM-MILL LINE
.020(REF)
.040(REF)
.020(REF)
1
CHEM-MILL LINE
PHOTO BUTT LINE
.040(REF)
.020(REF)
CHEM-MILL LINE
1
5
10 TO PHOTO BUTT LINE ON SH 3
.56
+Y27.000(REF)
TEMPLATE BUTT LINE

D C B A

LDW280-18743

02/02 NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			CONTRACT NO.	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714
LINEAR TOL	.XX	± .03	DRAWN BY	
	.XXX	± .010	LAYOUT BY	
ANGULAR TOL		± 0°30'	CHECKED BY	
TOL ON LOFTED DELINEATIONS IS			GR LEADER	
			REL GROUP	
			PROJ ENGR	SIZE J · CODE IDENT NO. 26512 · LDW280-18743
			GOVT APPD	SCALE FULL · SHEET 4.00

K2

1 FOR PHOTO REPRODUCTION 2FR

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (98 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

DISTR. LIST #

LDW280-18743	REV	SHEET
		4

1 FRAME FRAME 2 4 3 2

LDW280-18744

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
↕	↕	LTA-3DR/1(4[illegible])	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60544	LM-10(40)	1
PART NO. LDW280-18744-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED ~

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207

X(001) ME-16 8/29/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 55

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY W. CONROY 7-22-69

LAYOUT BY G. BELEV 8-21-69

CHECKED BY 8-20-69

GR LEADER 8-22-69

VEH DES INT 8-22-69

STRUCTURES

STRUCTURES 8/29/69

PROJ ENGR 8/29/69

REL GROUP 8-29-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

WEB
DESCENT STAGE ~ AFT LOWER
DECK

SIZE B

CODE IDENT NO. 26512

LDW280-18744

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 8-21-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18744-11	S	WEB	AL ALLOY SH	QQ-A-250/12	7075T6	.050×57 ×59	NOTE 2	NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
LPC19-2 (GRUMMAN) LPC19-3 (VENDOR)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

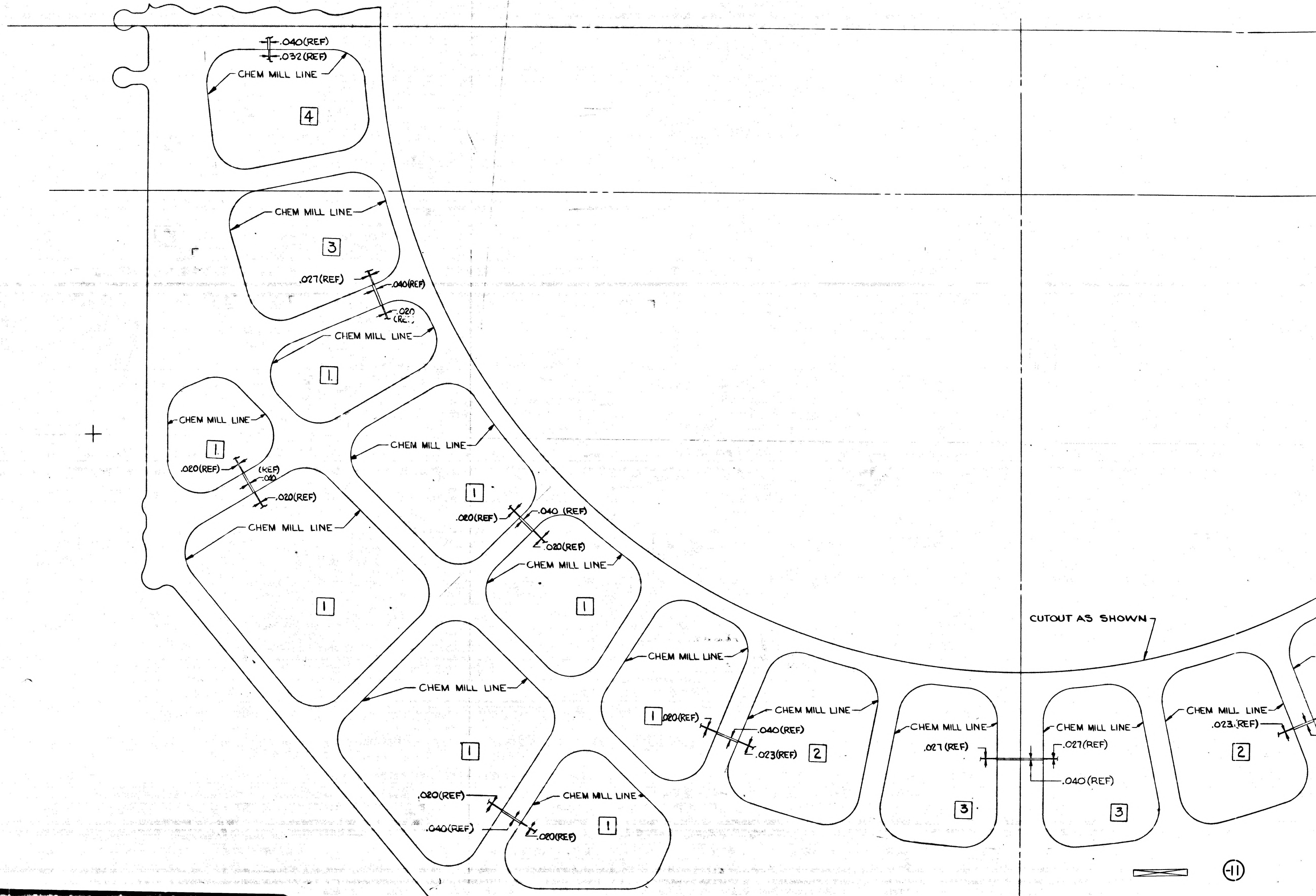
SIZE B
CODE IDENT NO. 26512
LDW280-18744

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

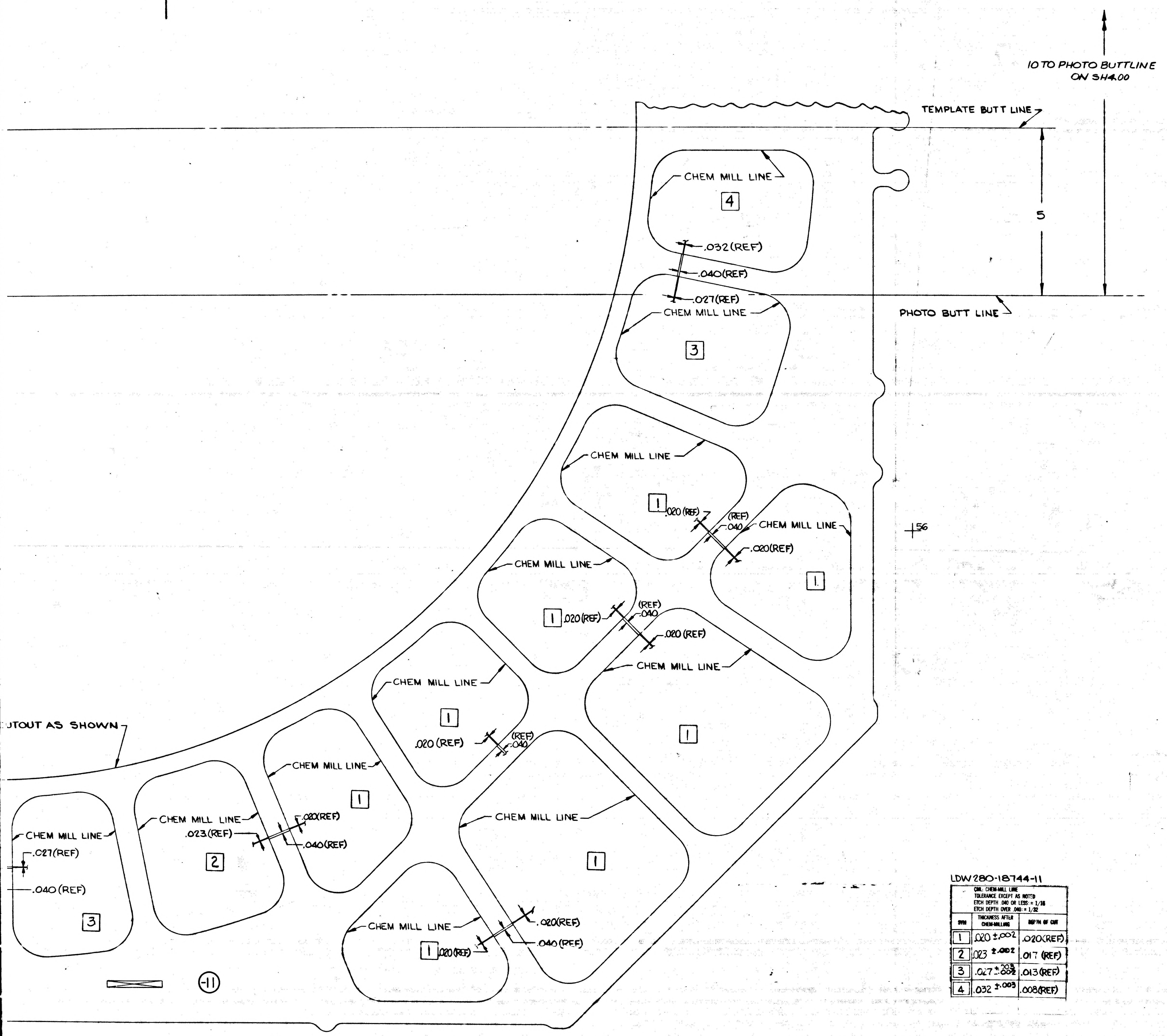
NAS 9-1100


.040(REF)
.032(REF)
CHEM MILL LINE
4
CHEM MILL LINE
3
.027(REF)
.040(REF)
.020 (REF)
CHEM MILL LINE
1
CHEM MILL LINE
1
.020(REF)
(REF) .040
.020(REF)
CHEM MILL LINE
1
.020(REF)
.040 (REF)
.020(REF)
CHEM MILL LINE
1
CHEM MILL LINE
1
CHEM MILL LINE
1
CHEM MILL LINE
1
.020(REF)
.040(REF)
CHEM MILL LINE
1
.020(REF)
CHEM MILL LINE
1
.020(REF)
CHEM MILL LINE
.040(REF)
.023(REF)
2
CHEM MILL LINE
.027 (REF)
3
CHEM MILL LINE
.027(REF)
.040 (REF)
3
CHEM MILL LINE
.023 (REF)
2
CUTOUT AS SHOWN
-11

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18744		3

FRAME 1 ← → 2


10 TO PHOTO BUTTLINE ON SH4.00
TEMPLATE BUTT LINE
PHOTO BUTT LINE
5
75
30
CHEM MILL LINE
4
.032(REF)
.040(REF)
.027(REF)
3
1
.020 (REF)
(REF) .040
.020(REF)
2
.023(REF)
UTOUT AS SHOWN
-11
+56

NOTES
1. NO TOOLING HOLES PERMITTED IN PART.
2. FABRICATE PER LPC 280-43.

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

LDW280-18744-11

CML: CHEM-MILL LINE
TOLERANCE EXCEPT AS NOTED
ETCH DEPTH .040 OR LESS: ± 1/16
ETCH DEPTH OVER .040: ± 1/32

SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.020 ±.002	.020(REF)
2	.023 ±.002	.017 (REF)
3	$.027^{+.003}_{-.002}$	.013(REF)
4	.032 ±.003	.008(REF)

02/02 NAS 9-1100

LDW280-18744 | REV | SHEET 3

FRAME 1 → FRAME 2

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18744

SCALE FULL SHEET 3.00

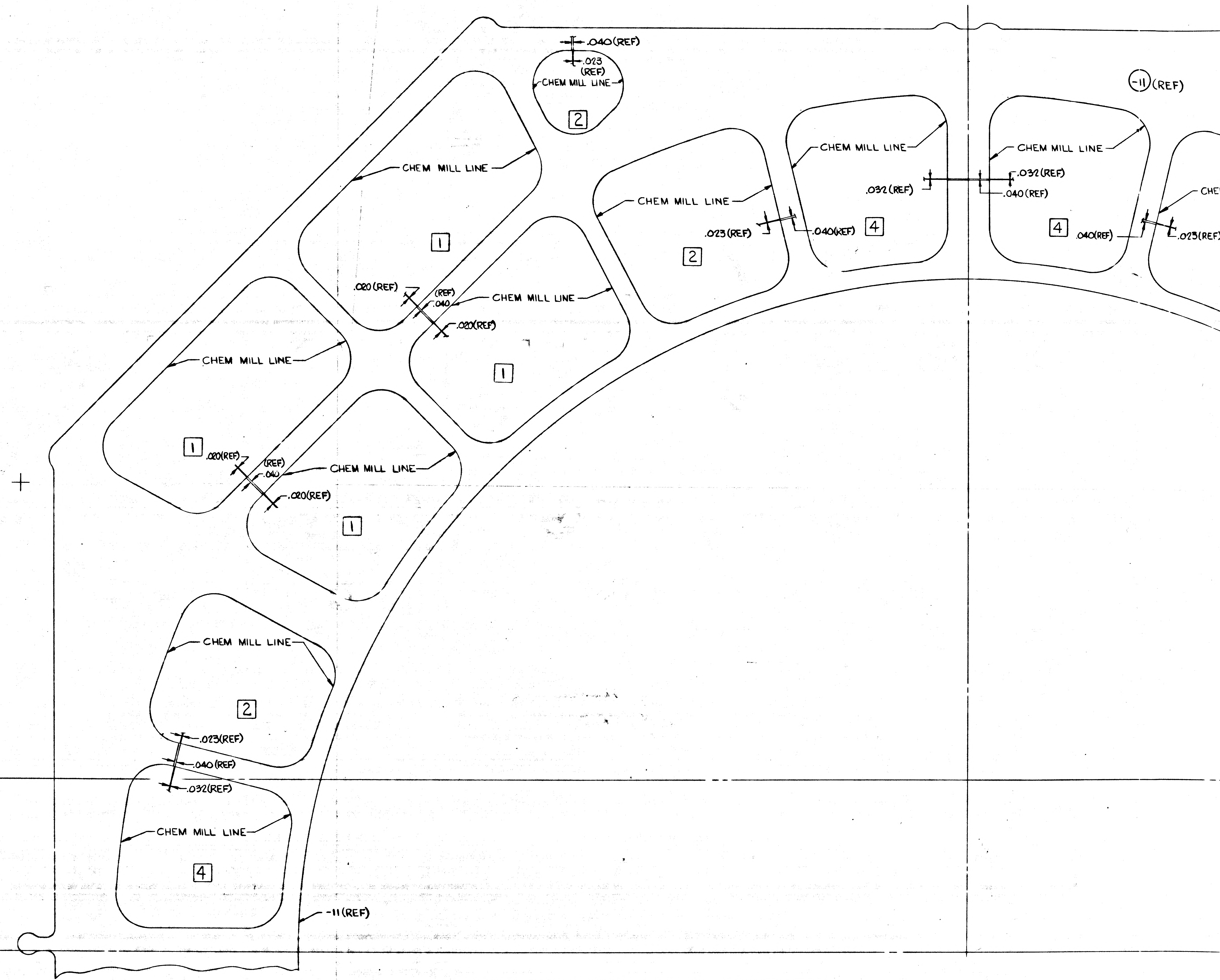
K2

1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST = ______

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (86 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

LDW280-18744


.040 (REF)
.023 (REF)
CHEM MILL LINE
2
(-11) (REF)
CHEM MILL LINE
1
.020 (REF)
(REF) .040
.020 (REF)
CHEM MILL LINE
1
CHEM MILL LINE
.023 (REF)
2
CHEM MILL LINE
.040 (REF)
4
.032 (REF)
.032 (REF)
.040 (REF)
CHEM MILL LINE
4
.040 (REF)
.023 (REF)
CHE
CHEM MILL LINE
1
.020 (REF)
(REF) .040
.020 (REF)
CHEM MILL LINE
1
CHEM MILL LINE
2
.023 (REF)
.040 (REF)
.032 (REF)
CHEM MILL LINE
4
-11 (REF)

01702

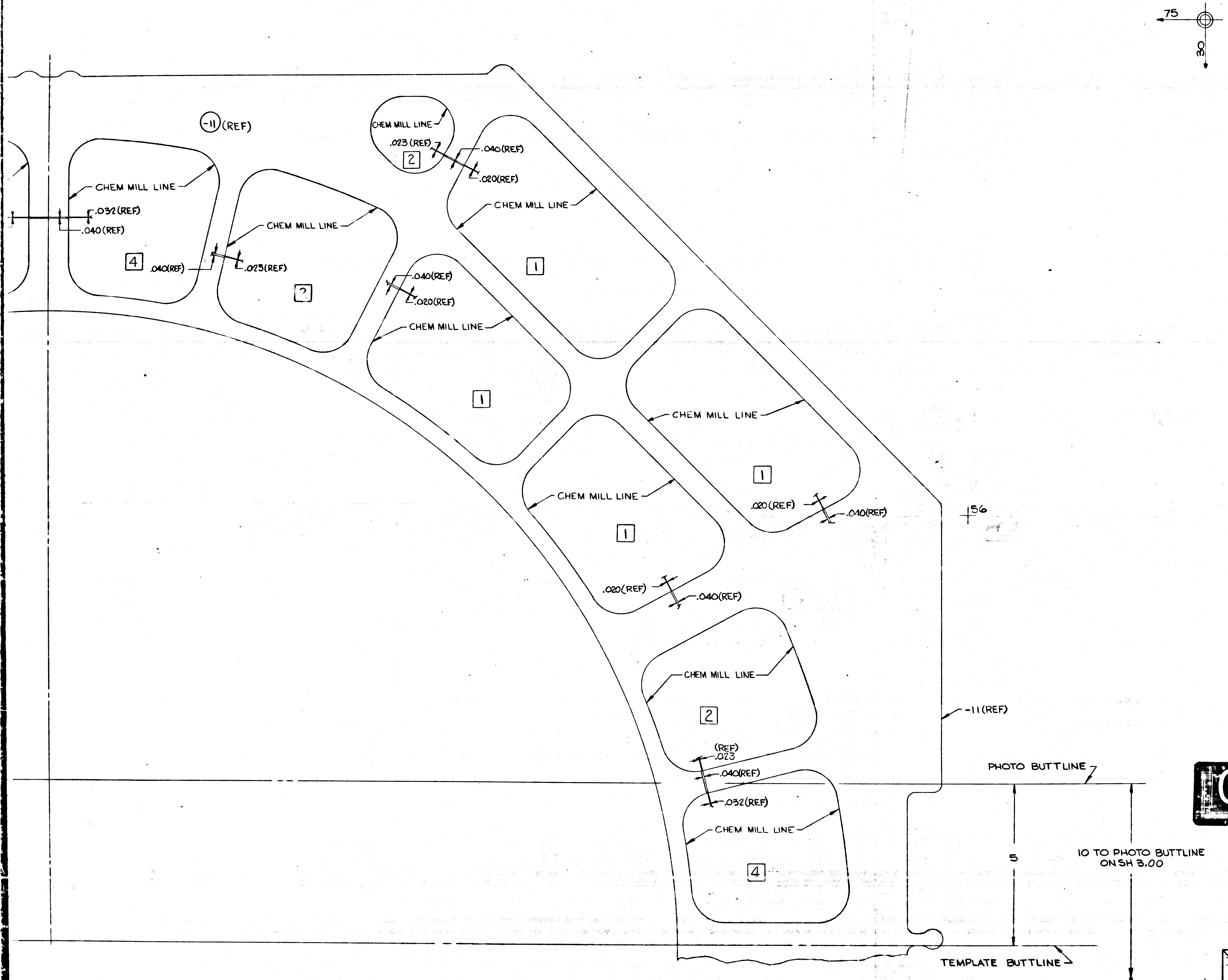
NAS 9-1100

CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18744		4

FRAME ← | FRAME → 2

Team Loading O.K.
[illegible] 9-3-69

ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED



75
30
-11 (REF)
CHEM MILL LINE
.023 (REF)
2
.040 (REF)
.020 (REF)
CHEM MILL LINE
.032 (REF)
.040 (REF)
4
.040 (REF)
.023 (REF)
2
1
1
1
1
2
4
.020 (REF)
.040 (REF)
56
-11 (REF)
(REF)
.023
.040 (REF)
.032 (REF)
PHOTO BUTTLINE
5
10 TO PHOTO BUTTLINE ON SH 3.00
TEMPLATE BUTTLINE

02/02
NAS 9-1100

LDW280-18744

REV	SHEET
	4

1 ← FRAME | FRAME → 2

UNLESS OTHERWISE SPECIFIED	
DIMENSIONS IN INCHES	
LINEAR TOL .XX	± .03
LINEAR TOL .XXX	± .010
ANGULAR TOL	± 0°30'
TOL ON LOFTED DELINEATIONS IS	

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18744

SCALE FULL SHEET 4.00
K2

1 FOR PHOTO REPRODUCTION 2FR

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (98 X 98)= 24.5 SQ FT
1/4 SIZE SHEET AREA (1/4 OF FULL)= 6.5 SQ FT

DISTR. LIST #

LDW280-18745

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	2EA
		LTA-3DR/1(460)	2 EA
		LM-14(44)	2EA
		LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
LM	LDW280-60523	LM-10(40)	2EA

PART NO. LDW280-18745-13,&-14 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	1EA
		LTA-3DR/1(400)	1 EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60523	LM-10(40)	1EA

PART NO. LDW280-18745-11,-15,-16,-17,-18,-19&-20 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PACKAGE FUNCTION NO.110 (6)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED

LAST DASH NO. USED -20

GRUMMAN REF INFO

PRIM NO. 207 V(001) ME-16-8/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 53

ECP A120

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY E.GREINER

LAYOUT BY W.LEIFER

CHECKED BY H. HICKS 7-1-69

GP LEADER 7-30-69

VEH DES INT 7-30-69

STRUCT

STRUCT NM 8-1-69

PROJ ENGR 8/1/69

REL GROUP J. Marsh 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-AFT UPPER DECK
R.H. - PANEL STIFFENER

SIZE B | CODE IDENT NO. 26512 | LDW280-18745

SCALE NONE | SHEET 1 OF 3

ENG 77.1 12-65

CDR 8-20-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18745-20	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040×2×6	T6	88	
								-19		ANGLE				.040×2×6			
								-18		ZEE				.036×4×16			
								-17		ZEE				.032×4×16			
								-16		ZEE				.032×4×16			
								-15		ZEE				.032×4×16			
								-14		ANGLE				.036×2×12			
								-13		ANGLE				.036×2×12			
								LDW280-18745-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032×4×16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18745

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

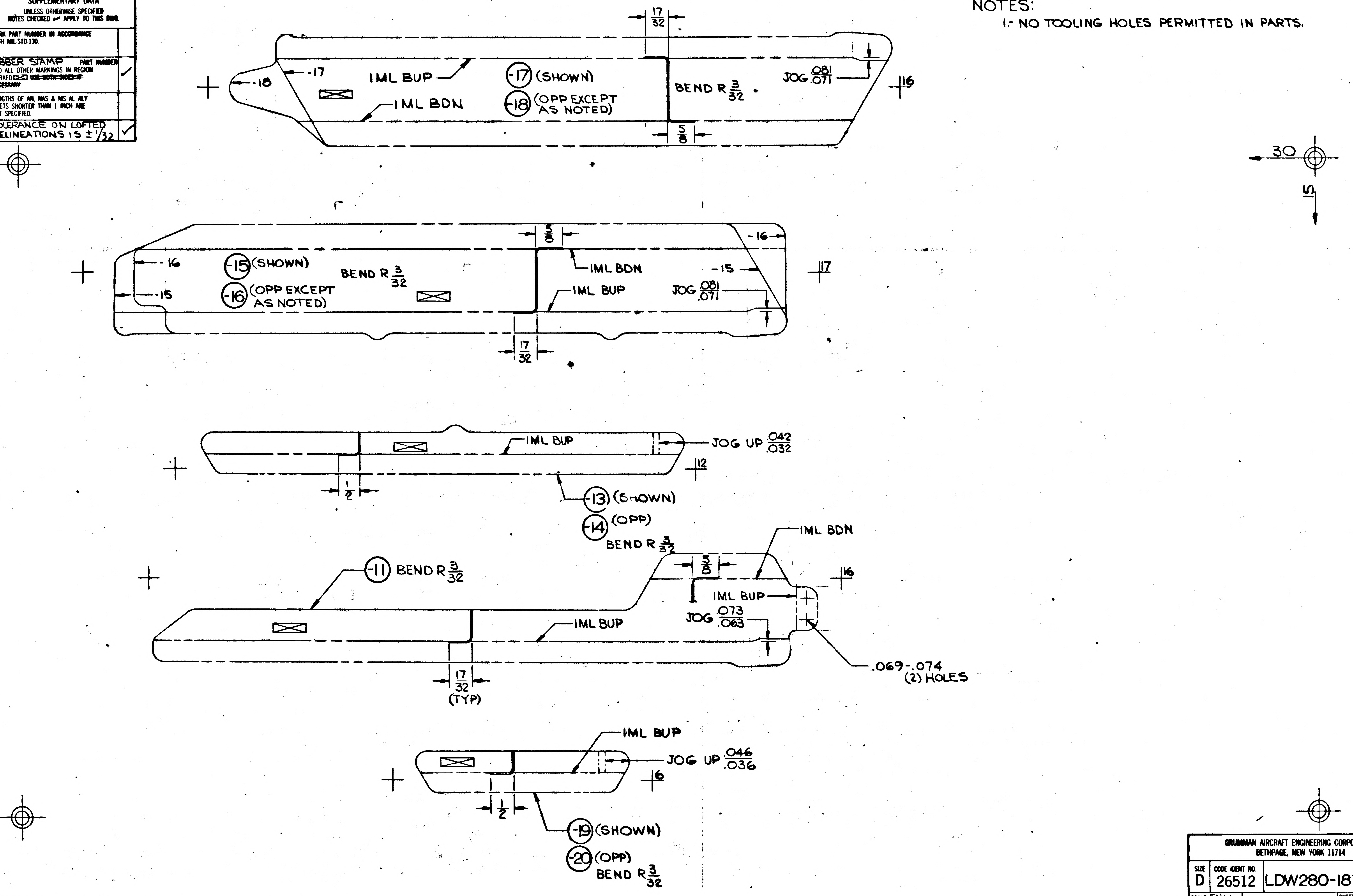
LDW280-18745

overlay & TRAM OK. 6-26-69 T.L. 6-21-69

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1.- NO TOOLING HOLES PERMITTED IN PARTS.



-18
-17
IML BUP
IML BDN
-17 (SHOWN)
-18 (OPP EXCEPT AS NOTED)
17/32
BEND R 3/32
JOG .081/.071
5/8
16
30
15
-16
-15 (SHOWN)
-16 (OPP EXCEPT AS NOTED)
-15
BEND R 3/32
5/8
IML BDN
IML BUP
-15
JOG .081/.071
17/32
17
IML BUP
JOG UP .042/.032
12
1/2
-13 (SHOWN)
-14 (OPP)
BEND R 3/32
IML BDN
-11 BEND R 3/32
5/8
IML BUP
16
IML BUP
JOG .073/.063
.069-.074 (2) HOLES
17/32 (TYP)
IML BUP
JOG UP .046/.036
6
1/2
-19 (SHOWN)
-20 (OPP)
BEND R 3/32

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18745	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION K2

LDW280-18745

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1670
CONTROL INFO LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T. (70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

	DRAWING NO (*)	TITLE	CHANGE No.
✓	LDW280-18701	SEE DWG	A1
✓	LDW280-18700		A1
✓	LDW280-18692		A1
✓	LDW280-18745		A1
+	-18736		A2
+	-18731		A1
+	-18702		A2
+	M18090		A1
+	-18747		A1
+	LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 53 PG 3 & 4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. * 6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T. (70) EFF.

GAEC I EO RELEASE: 9-12-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT REQ'D		APPROVED BY							
				DATE	9-2-69			8/21/69	9/8/69		9/11/69 9/18/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG / GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

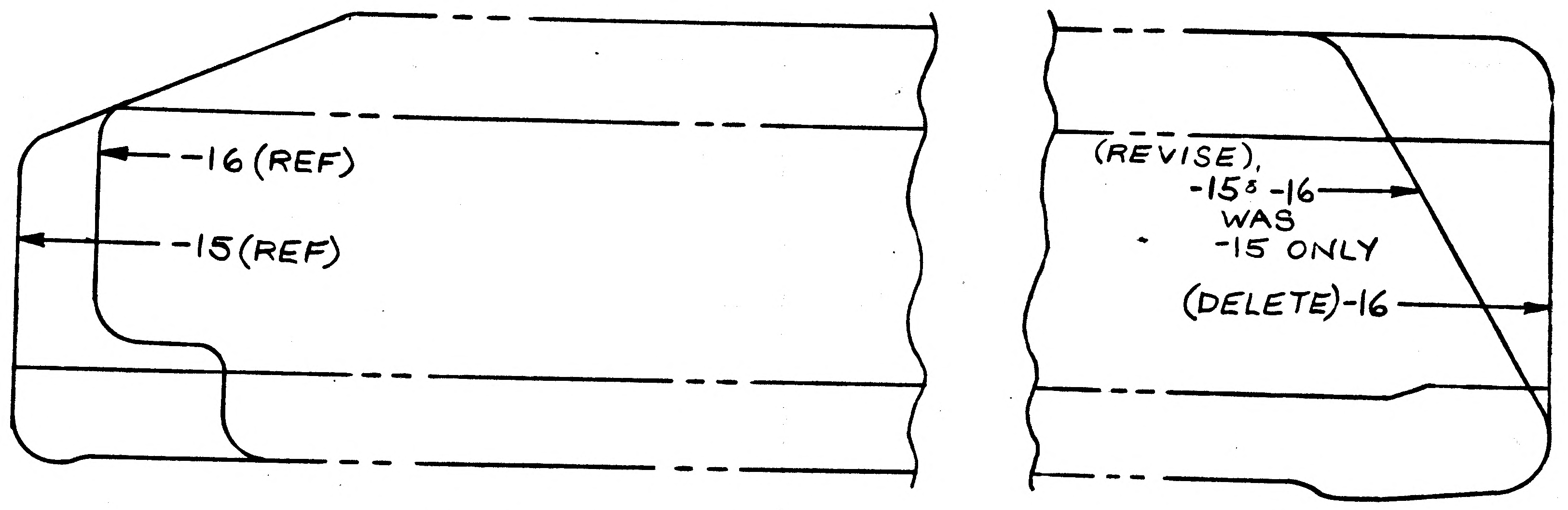
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18745 | EO NO. A2
CONTROL INFO NO. LM-2-5650



LDW280-18745-15 (SHOWN)
-16 (OPP EXCEPT AS NOTED)

IN FLD/DWG TRIM EDGE OF -16 ZEE AS SHOWN ABOVE

NOTE: FOR REWORK FINISH BARE SURFACES #76 (BRUSH ALODINE) PER LSP-14-9010

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD3890 ECP A120

REASON FOR EO	DESCRIPTION OF EO	R GAEC EO RELEASE (2)
ELIMINATE INTERFERENCE WITH THERMAL SHIELDING BRACKETRY ON LDW280-60587 INSTL	FOR -15, IN FLD/DWG, REVISED TRIM OF -16	JK

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
		LM-14 (44) LTA-11 (23)	
		LTA-3DR/1 (460) DVT (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				DOR-1858	KC			
DATE	10/31/69			10-30-69	10/27/69	10/27/69	10/31/69	10/31/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE~DESCENT STAGE~AFT UPPER DECK~R.H. PANEL STIFFENER	LDW280-18745	A2

ISSUED BY LIAISON J. MALONEY 10/24/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 1859
CONTROL INFO NO. LM-5-22301		

ON DASH NOS. ✱ OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS ✱	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW 280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14		3	1		A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW 280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW 280-18736	-11		24	8		A6
	-15		6	2		
LDW 280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19		6	2		
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

01
NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890			

REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372

DESCRIPTION OF EO: ON -✱, QTY ■ REQ'D/VEHICLE WAS ▲

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO-280

EO NO.: 1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

LDW280-18746

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11 (23)	1 EA
		LTA3DP/1(46)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60523	LM-10(40)	1 EA

PART NO. LDW280-18746-11,-12, -13,-14,-15,-16,-17&-18 | GAEC SCH NO.

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00							
REV								
SHEET	2.00							
REV								
SHEET	3.00							
REV								

LAST SECT LTR USED —
LAST DASH NO. USED -18

GRUMMAN REL INFO
PRIM NO. 207 | JK(001) ME-16 8/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890. PKG 53
ECP A120

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY E. STONHAM
LAYOUT BY W. LEIFER 6/4/69
CHECKED BY J.D.COBB 7-2-69
GP. LEADER J.W. 7-30-69
VEH DES INT 7-30-69
STRUCTURES
STRUCTURES N.M. 8-1-69
PROJ ENGR 6/2/69
REL GROUP 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE~AFT UPPER DECK~
L.H.~PANEL STIFFENER

SIZE B | CODE IDENT NO. 26512 | LDW280-18746
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-20-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18746-18	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.036 X 2 X 12	T6	88	
								-17		ANGLE				.036 X 2 X 12			
								-16		ZEE				.032 X 4 X 15			
								-15		ZEE				.032 X 4 X 15			
								-14		ANGLE				.040 X 2 X 7			
								-13		ANGLE				.040 X 2 X 7			
								-12		ZEE				.032 X 4 X 15			
								LDW280-18746-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 X 4 X 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEATTREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18746

SCALE NONE

SHEET 2.00

ENG 77.2 7-66

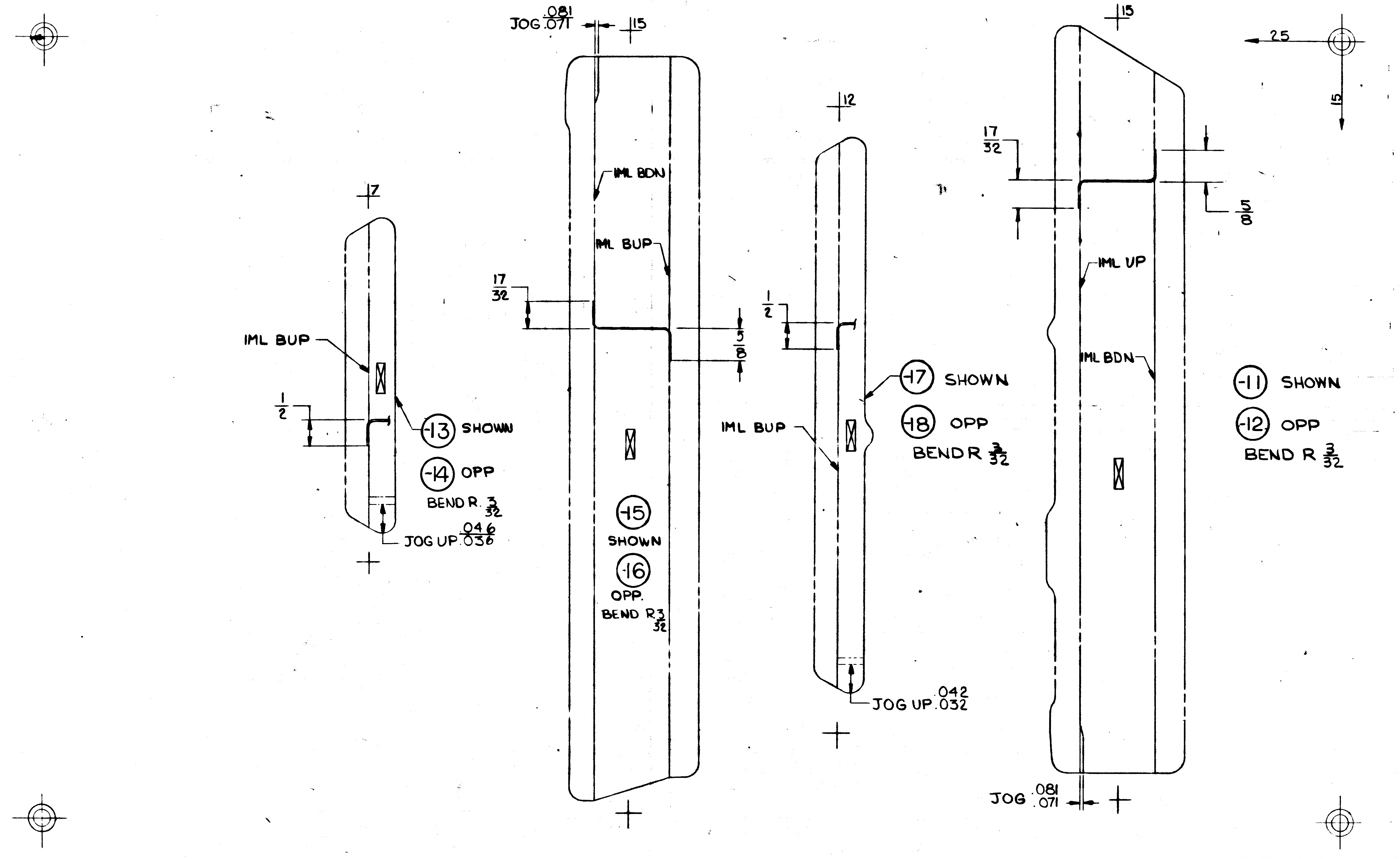
01

NAS 9-1100

LDW280-18746

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ∓ 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



JOG .081/.071
15
17
12
15
25
15
IML BDN
IML BUP
IML UP
IML BDN
17/32
5/8
1/2
IML BUP
-13 SHOWN
-14 OPP
BEND R 3/32
JOG UP .046/.036
-15 SHOWN
-16 OPP.
BEND R 3/32
-17 SHOWN
-18 OPP
BEND R 3/32
JOG UP .042/.032
-11 SHOWN
-12 OPP
BEND R 3/32
JOG .081/.071

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE D | CODE IDENT NO. 26512 | LDW280-18746
SCALE FULL | SHEET 3.00

FOR PHOTO REPRODUCTION K2

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700		A1
LDW280-18692		A1
LDW280-18745		A1
-18736		A2
-18731		A1
-18702		A2
M18090		A1
-18747		A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 53 PG 3 & 4 (5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. # 6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T.(70) EFF.

GAEC EO RELEASE: 9-12-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		D.V.T.(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP
APPROVED BY: DATE 9-3-69 VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER 8/21/69
STRESS GROUP 9/8/69
LIAISON ENGRG
PROJ ENGRG 9/11/69
GOVT 9/18/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

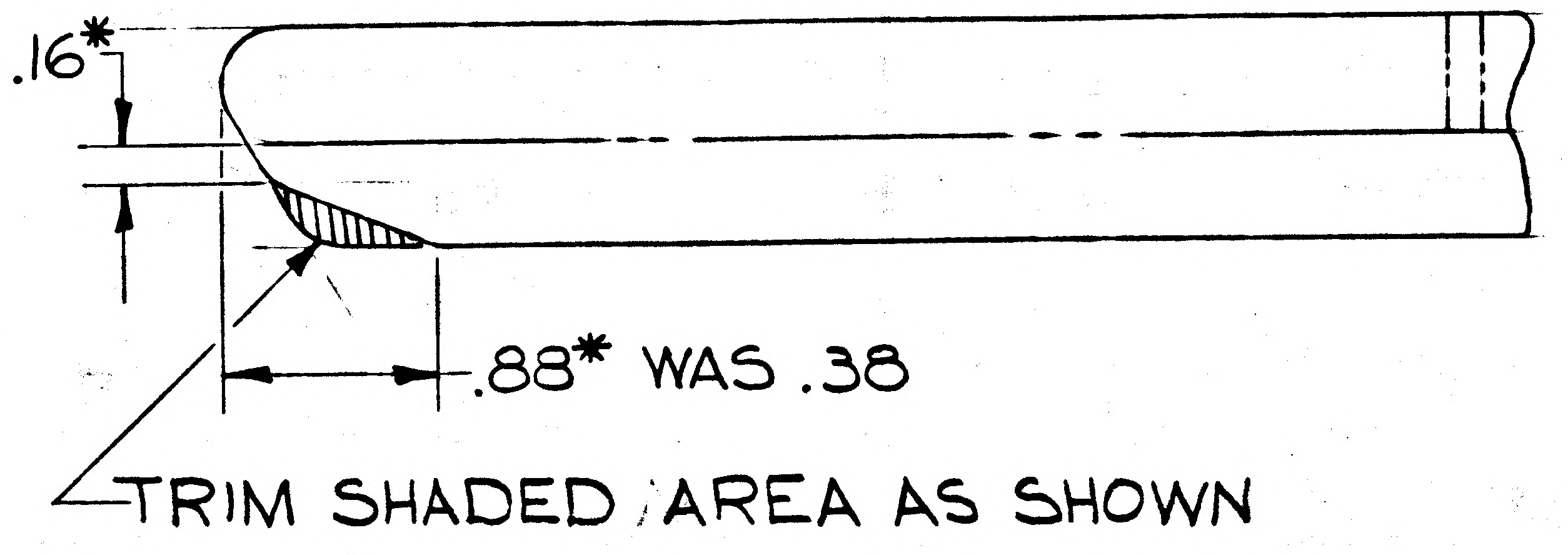
ENGINEERING ORDER

DWG. NO. LDW280-18746

EO NO. A2

CONTROL INFO NO. LDW280B9515

TRIM -13 AS SHOWN IN SHADED AREA.



(✱) ~ DIM. FOR EO. PURPOSES ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD ~ 3890 PKG ~ 58	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE FOR FITH STRAP	TRIMMED -13	JK 12/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LM-10 (40) THRU LM-14 (44)	LTA-11 (23) LTA-3 DR/1 (46)	✓		✓	

APPROVED BY								
DATE	12/11/69			12/10/69	12/11/69		12/12/69	12/13/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE ~ D/S ~ CUTOUT STIFFENER ~ LH. ~ UPPER DECK	LDW280-18746	A2

CDR ~ 12-19-69

ISSUED BY R. HELMICKI x 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 1859
CONTROL INFO NO. LM-5-22301

ON DASH NOS. ✱ OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS ✱	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14		3	1		A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19		6	2		
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890

REASON FOR EO: QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372

DESCRIPTION OF EO: ON -✱, QTY ■ REQ'D/VEHICLE WAS ▲

GAEC EO RELEASE: K

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
DATE	3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70
	VDI							

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO-280 | EO NO.: 1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

LDW280-18747

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60523	LM-10 (40)	2
PART NO. LDW280-18747-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LTA11(23)	1EA
		LTA-3DF/1(460)	1EA
		LM-14 (44)	1EA
		LM-13 (43)	1EA
		LM-12 (42)	1EA
		LM-11 (41)	1EA
LM	LDW280-60523	LM-10(40)	1EA
PART NO. LDW280-18747-11,13 -14,-15,-16,-17&-18		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED	—
LAST DASH NO. USED	-19

GRUMMAN REF INFO
PRIM NO. 207 K(001) ME-16 8/2/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3870, ECPA120

CONTRACT NO. NAS9- 1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	ED STONHAM
LAYOUT BY	W.LEIFER
CHECKED BY	D. Fay 7-22-69
GP LEADER	7-29-69
VEH DES INT	7-29-69
STRUCTURES	
STRUCTURES	NM 7/30/69
PROJ ENGR	7/31/69
REL GROUP	8-1-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-AFT UPPER DECK
SQUIB VALVE SPT

SIZE B
CODE IDENT NO. 26512
LDW280-18747
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

PKG 53

CDR 8-19-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18747-19	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	032 x 1 x 3	T6	88	
		LDW280-18747-18	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	032 x 3 x 4	T6	88	
		-17						032 x 3 x 5			
		-16						032 x 3 x 7			
		-15		CHANNEL				0. 2 x 3 x 8			
		-14		ZEE				032 x 5 x 15			
		-13		ZEE				032 x 5 x 15			
		LDW280-18747-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	032 x 2 x 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18747

SCALE NONE
SHEET 2.00

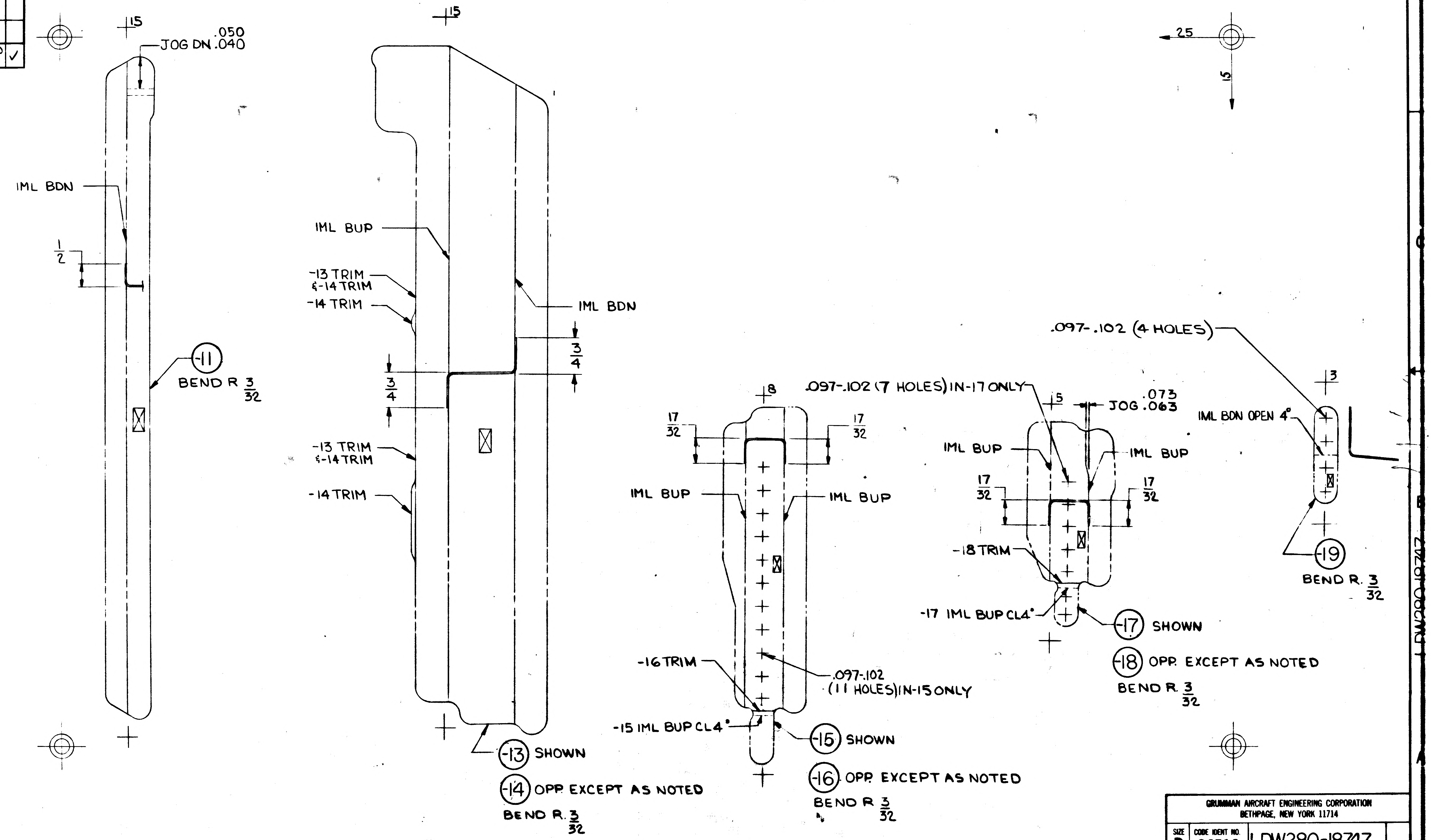
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ∓ 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



15
.050
JOG DN .040
IML BDN
1/2
-11
BEND R 3/32
15
IML BUP
-13 TRIM
& -14 TRIM
-14 TRIM
IML BDN
3/4
3/4
-13 TRIM
&-14 TRIM
-14 TRIM
-13 SHOWN
-14 OPP EXCEPT AS NOTED
BEND R. 3/32
8
17/32
17/32
IML BUP
IML BUP
-16 TRIM
.097-.102
(11 HOLES) IN-15 ONLY
-15 IML BUP CL4°
-15 SHOWN
-16 OPP. EXCEPT AS NOTED
BEND R 3/32
.097-.102 (7 HOLES) IN-17 ONLY
.5
.073
JOG .063
IML BUP
IML BUP
17/32
17/32
-18 TRIM
-17 IML BUP CL4°
-17 SHOWN
-18 OPP. EXCEPT AS NOTED
BEND R. 3/32
.097-.102 (4 HOLES)
3
IML BDN OPEN 4°
-19
BEND R. 3/32
25
15

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18747

SCALE FULL
SHEET 3.00

FOR PHOTO REPRODUCTION

K2

ENG 73.3 REV 5-67

10

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1670
CONTROL INFO NO. LDW280B8779

FOR ALL DASH NO.'S * ON THE FOLLOWING DWGS. ADD D.V.T.(70) EFFECTIVITY FOR N/A LDW280-60523, QTY TO REMAIN THE SAME AS FOR LM-10 (40).

DRAWING NO (*)	TITLE	CHANGE No.
LDW280-18701	SEE DWG	A1
LDW280-18700	↑	A1
LDW280-18692	│	A1
	│	
	│	
	│	
LDW280-18745	│	A1
-18736	│	A2
-18731	│	A1
-18702	│	A2
M18090	│	A1
-18747	↓	A1
LDW280-18746	SEE DWG	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 53 Fy 3 & 4

(5)

REASON FOR EO: TEST DECKS REQD PER LMMP PDR R.F.A. *6.0-15. ~ GAC ACTION ITEM.

DESCRIPTION OF EO: FOR (*) ADDED D.V.T. (70) EFF.

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		D.V.T. (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK, SCRAP)

APPROVED BY								GAEC EO RELEASE
								9-12-69
								VK 9/18/69
	ggt							
DATE	9-3-69			8/21/69	9/8/69		9/11/69	9/18/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1670

9-10-69
ISSUED BY G. HANSMANN W. LEIFER X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 1859
CONTROL INFO NO. LM-5-22301

ON DASH NOS. * OF THE FOLLOWING DWGS, INCREASE QTY REQ'D/VEHICLE FOR DVT (70) AS NOTED:

DWG NO.	DASH NOS *	NEXT ASSY	QTY/VEH ■ IS	QTY/VEH ▲ WAS	TITLE	CHANGE NO.
LDW280-18692	-15, -16 -17, -18	LDW280-60523	3	1	SEE DWG	A3
LDW280-18700	-13, -14		3	1		A2
LDW280-18701	-11, -13, -15 -16, -17, -18 -19		3	1		A3
LDW280-18702	-17		3	1		A3
LDW280-18723	-13		3	1		A2
LDW280-18731	-15		6	2		A3
	-19		12	4		
LDW280-18736	-11		24	8		A6
	-15		6	2		
LDW280-18745	-11, -15, -16 -17, -18, -19 -20		3	1		A3
	-13, -14		6	2		
LDW280-18746	-11 THRU -18		3	1		A3
LDW280-18747	-11, -13 THRU -18		3	1		A2
	-19		6	2		
LDW280M18090	-13	LDW280-60523	3	1	SEE DWG.	A5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☒	LCD 3890

REASON FOR EO	DESCRIPTION OF EO
QUANTITY INCREASE NEEDED FOR REQUIREMENTS OF LSK 280-11372	ON -*, QTY ■ REQ'D/VEHICLE WAS ▲

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT (70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
					CR		
DATE 3-10-70			3/10/70	3/3/70	3-3-70	3/10/70	3/6/70

GAEC EO RELEASE

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	1859

ISSUED BY LIAISON C. RISSLAND 86755 SECTION VDI GROUP NO. 280 PL 25

LDW280-18748

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60520	LM-10 (40)	1
PART NO. LDW280-18748-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60521	LM-10(40)	1 EA
PART NO. LDW280-18748-11, -13, -15 & -16		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -17

GRUMMAN REL INFO
PRIM NO. 207
VC(001) ME-16 8/4/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H. SCHWETER 7/1/69
LAYOUT BY G. CHAN BC DS 7/18/69
CHECKED BY J. KARTZMAR 7-22-69
GR LEADER R.W. H 7/30/69
VEH DES INT Thorjussen 7-30-69
STRUCTURES
STRUCTURES N.M. 8-1-69
PROJ ENGR 8/2/69
REL GROUP A. Marsh 8/4/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE

DESCENT STAGE ~ L.H. & R.H. UPPER DECK ~ PROP. TANK CUTOUT ~ FRAME.

SIZE B
CODE IDENT NO. 26512
LDW280-18748
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

ECP A120

CDR 8-19-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18748-17	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 x 3 x 17	T6	88	
		-16		ZEE				.063 x 5 x 16			
		-15						.063 x 5 x 16			
		-13						.063 x 5 x 40			
		LDW280-18748-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.071 x 5 x 54	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18748

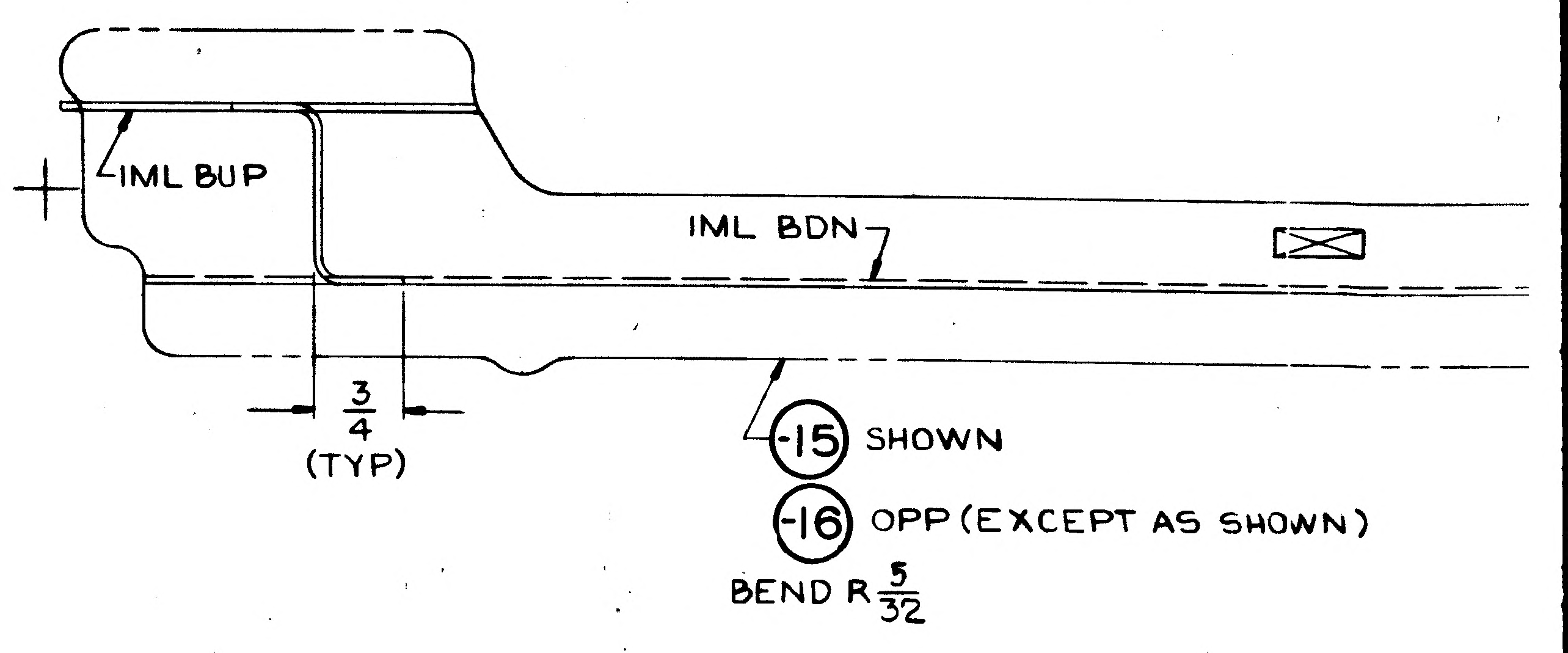
SCALE NONE

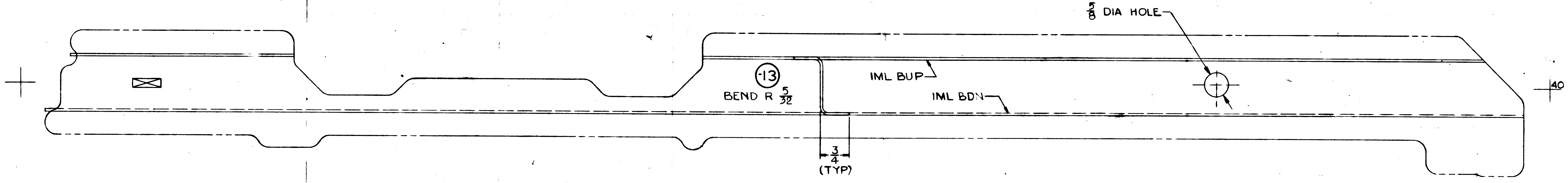
SHEET 2.00

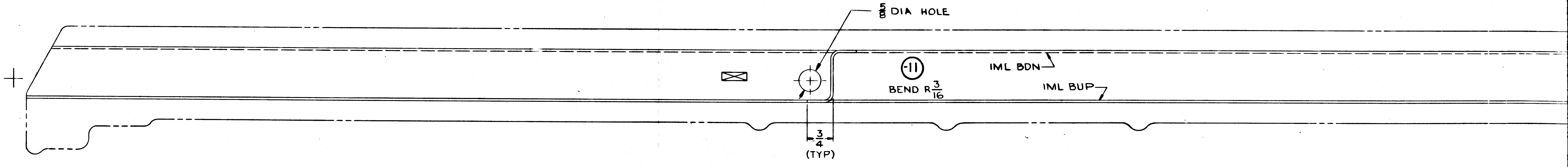
ENG 77.2 7-66

01

NAS 9-1100


IML BUP
IML BDN
3/4 (TYP)
-15 SHOWN
-16 OPP (EXCEPT AS SHOWN)
BEND R 5/32


5/8 DIA HOLE
-13
BEND R 5/32
IML BUP
IML BDN
3/4 (TYP)


5/8 DIA HOLE
-11
BEND R 3/16
IML BDN
IML BUP
3/4 (TYP)

01/02 NAS 9-1100

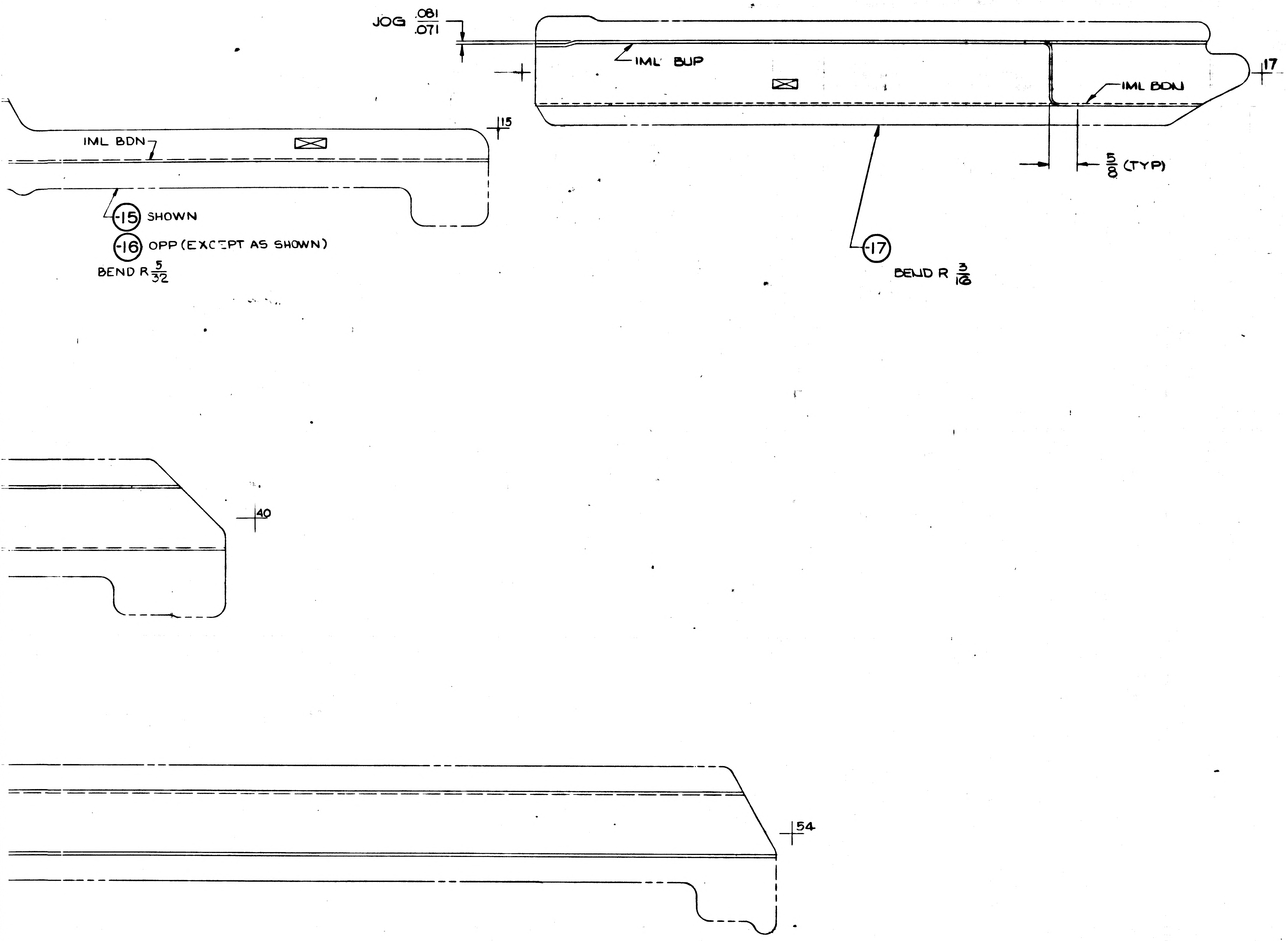
CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18748		3

overlay & trim ok.
T.L. 6-11-69

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCES ON LOFTED DELINEATIONS IS ±1/32	✓



75
30

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.

02/02 NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL.~~

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES			CONTRACT NO.
LINEAR TOL	.XX	± .03	DRAWN BY
	.XXX	± .010	LAYOUT BY
ANGULAR TOL		± 0°30'	CHECKED BY
TOL ON LOFTED DELINEATIONS IS			GR LEADER
			REL GROUP
			PROJ ENGR
			GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18748
SCALE FULL		SHEET 3.00 OF

FOR PHOTO REPRODUCTION K2

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
½ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

LDW280-18748

LDW280-18748 REV SHEET 3

FRAME FRAME

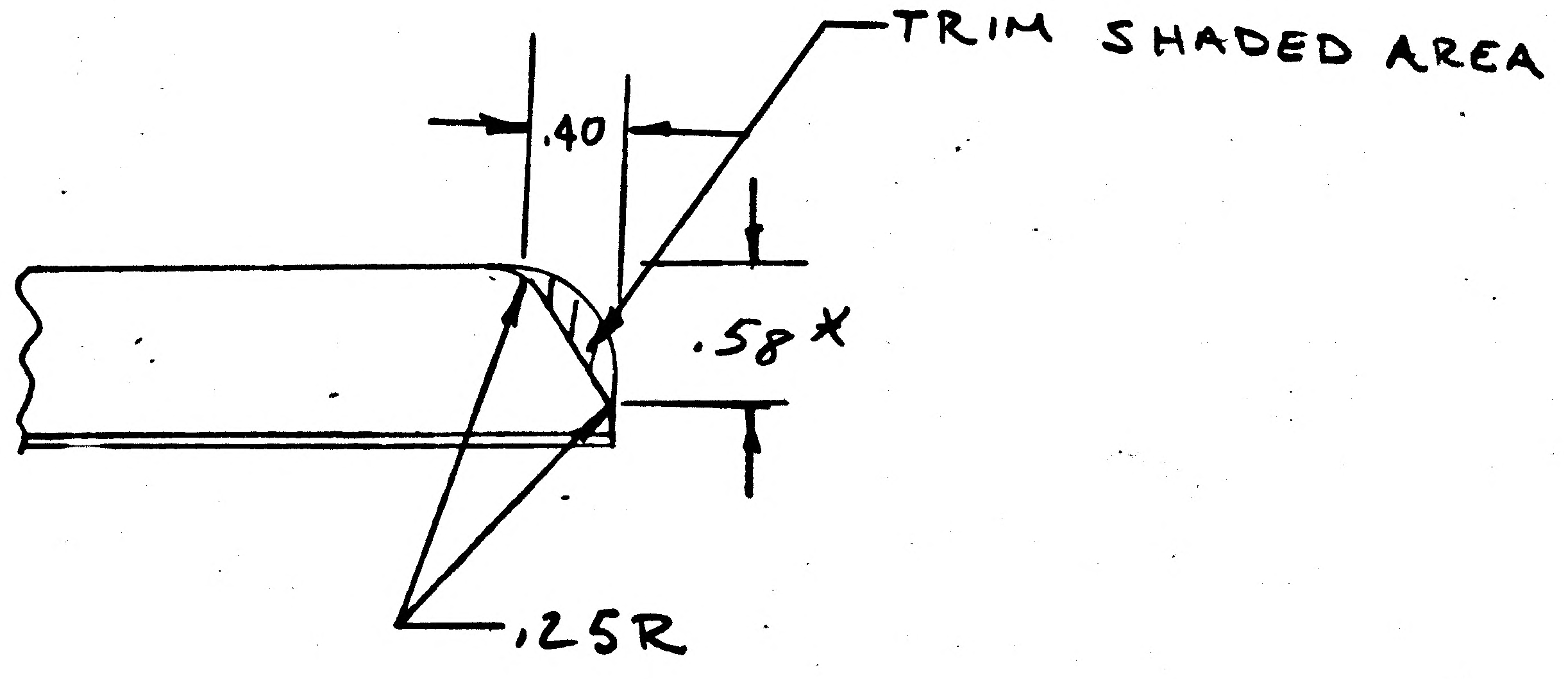
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 -18748
EO NO. A1
CONTROL INFO NO. -DW280B8965

ON -15 & -16 TRIM SHADED AREA AS SHOWN



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PK51

REASON FOR EO: TO REMOVE INTERFERENCE WITH FITH SHIELD

DESCRIPTION OF EO: TRIMMED -15 & -16

GAEC EO RELEASE (5) 9-29-69 9/30/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU 14(44)	
LM		LTA 3DR/1(460) LTA11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					NM			
DATE	9/26/69			9-25-69	9-26-69		9/28/69	9/29/69
	VDI							

PRIORITY: ZEE C
DRAWING TITLE: D/S-LH UPPER DECK
DRAWING NO.: LDW280-18748
EO NO.: A1

CDR 100369
ISSUED BY Don Ragas X 86046 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1730
CONTROL INFO NO. LDW280B8482

FOR DWGS & DASH NOS * LISTED BELOW REMOVE FROM B/M, F/D & M/B N/A LDW 280-60520 EFF. LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)

DRAWING	DASH NO *	DRAWING TITLE	CHANGE NO
LDW280-18732	-13*	SEE DRAWING	A1
LDW280-18748	-17*	SEE DRAWING	A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PKG 50 (5)

REASON FOR EO: REMOVE STIFFENERS TO ALLOW INSTL OF H2O TANK SPRT STRUCT.

DESCRIPTION OF EO: REMOVED (*). EFF LM-10(40) THRU LM-14(44) LTA-11(23) & LTA-3DR/1(460).

GAEC EO RELEASE: JK 10/17/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44) LTA-3DR/1(460) LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK, SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					N/A			
DATE	10/15/69			10-15-69	10/16/69		10/16/69	10/17/

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1730

CDR 11/30/69
ISSUED BY G. CHAN/G. HANSMANN X86046 SECTION VDI GROUP NO. 355 PL 25

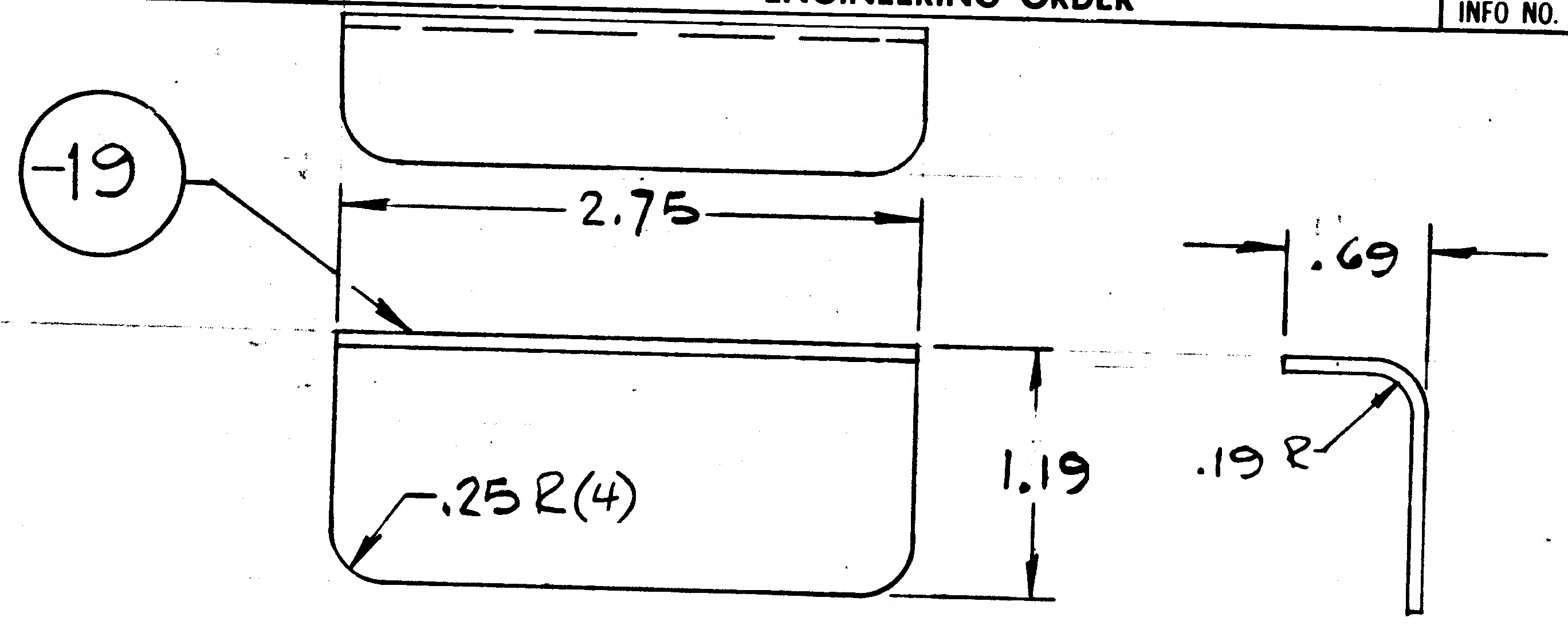
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18748
EO NO. A3
CONTROL INFO NO. LDW280B9186



ADD -19 ANGLE MAT'L 7075 HT TO T6 AL ALY SH QQ-A-250/12 FINISH 88. STOCK .071 SHEET. EFF LM10(40) THRU LM14(44), LTA-3DR/1 (460) & LTA-11(23). N/A LDW280-60520 2/MOD. I&T (E).

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCO 3994 PKG 50 | (5)

REASON FOR EO: REINFORCE CUTOUTS MADE FOR QUAD IV BATTERY INSTL RELOCATED TO AFT BULKHEAD

DESCRIPTION OF EO: ADDED -19

GAEC EO RELEASE: SWD 10-25-9

JK 10/27/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)-LM14(44)	
		LTA-3DR/1(460) LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQD

APPROVED BY									
DATE	10/23/69				10-23-69	10/24/69		10/24/65	10/25/69
	VDI	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: ZEE-D/S ~ L.H. & R.H. UPPER DECK PROP. TANK ~ CUTOUT-FRAME

DRAWING NO. LDW280-18748

EO NO. A3

11-7-69

ISSUED BY GENE CHAN X87222 / GUS HANSMANN SECTION VEHICLE DES. INT. GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18749

LDW280-18749-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LTA-11(23)	1
		LTA-3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18749-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60521	LM-10(40)	2
	LDW280-60520	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60520	LM-10(40)	2

PART NO. LDW280-18749-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60522	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60522	LM-10(40)	2

PART NO. LDW280-18749-15

GAEC SCH NO. 51-6

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60521	LTA-11(23)	1
		LTA-3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
	LDW280-60521	LM-10(40)	
	LDW280-60520	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		LM-13(43)	
		LM-12(42)	
		LM-11(41)	
LM	LDW280-60520	LM-10(40)	1

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED ~

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. JK(001) 207

ME-16 10/1/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3994 PKG. 69

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 9-26-69
LAYOUT BY	J. TAVARES Jr A. PROKOPETZ
CHECKED BY	J.D.C. 9-29-69
GR LEADER	Thomson 9-30-69
ENGRG DES INT	10-1-69
STRUCTURES	N. MARKELOFF 10-1-69
STRUCTURES	W/H 10/1/69
PROJ ENGR	10/1/69
REL GROUP	10/1/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE ~ R.H. & L.H UPPER
DECK ~ CAPSTRIP STRAP

SIZE B

CODE IDENT NO. 26512

LDW280-18749

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 10-3-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18749-17	E	DOUBLER	ALALLOY SH	QQ-A-250/12	7075-T6	.040×2×5	NONE	88	
		-15	↕	↕	↕	↕	↕	.050×2×46	↕	↕	
		-13	↕	↕	↕	↕	↕	.063×1×7	↕	↕	
		LDW280-18749-11	E	DOUBLER	ALALLOY SH	QQ-A-250/12	7075-T6	.080×3×11	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18749

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

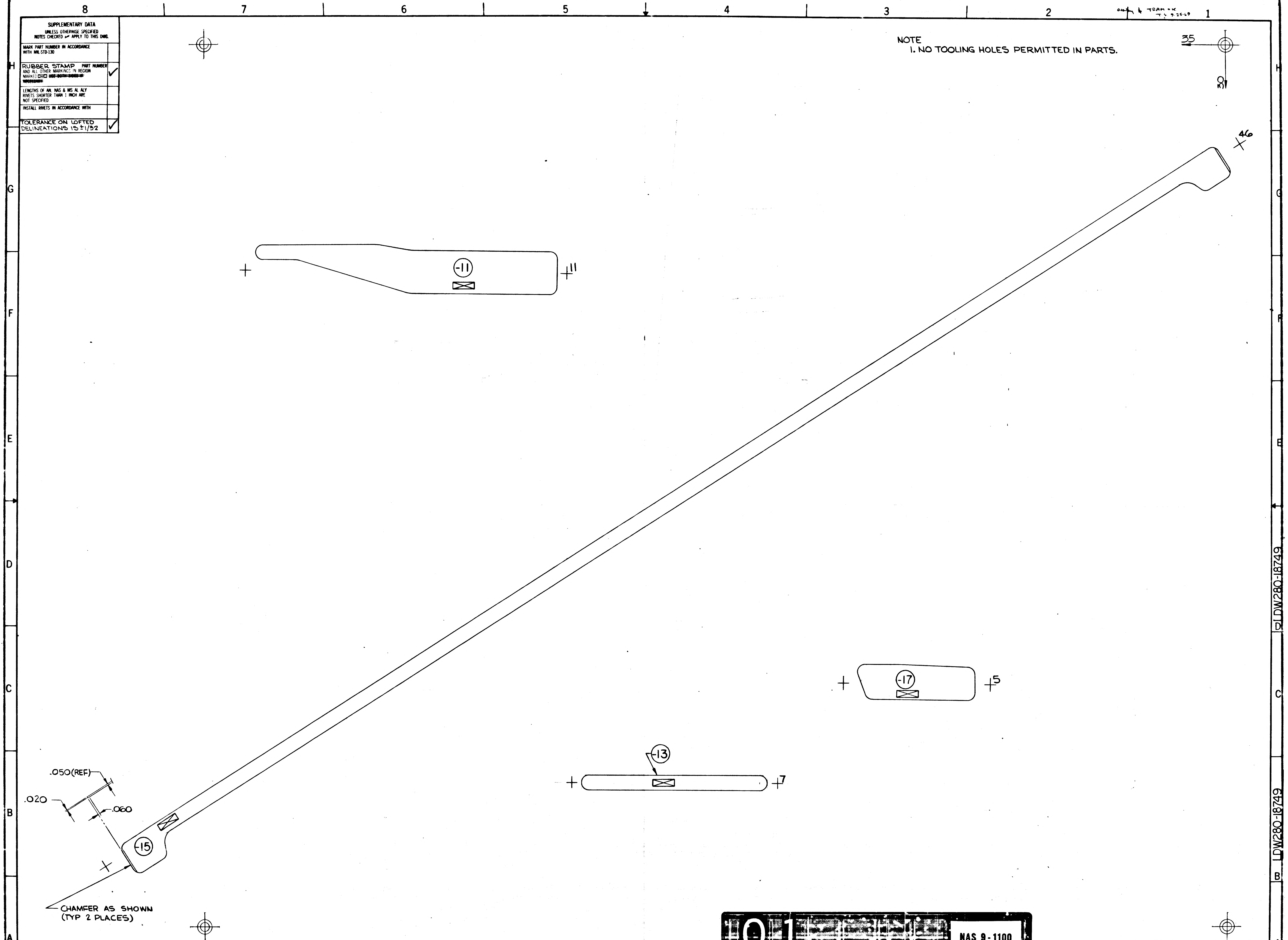
01

NAS 9-1100

[illegible] & TRAM OK
[illegible] 9-25-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



CHAMFER AS SHOWN
(TYP 2 PLACES)

LDW280-18749

LDW280-18749

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18749
SCALE FULL		SHEET 3.00

FOR PHOTO I REPRODUCTION

ENG 73.4 REV. 3-67

90

ENG 32.1 REV 3-65

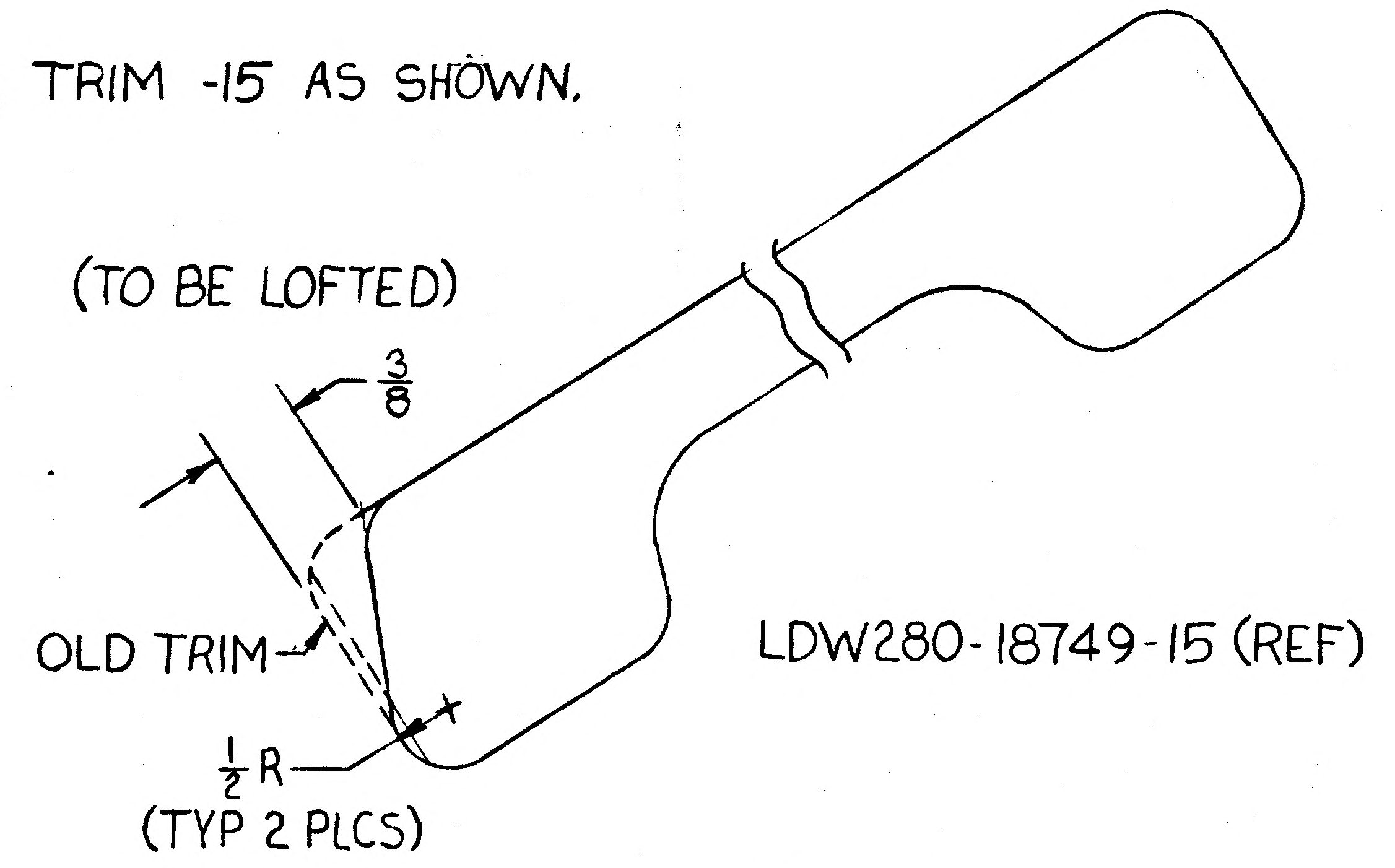
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LDW280-18749	EO NO.	A1
CONTROL INFO NO.	LM-2-5680		

IN F/D, TRIM -15 AS SHOWN.



REWORK NOTE: FINISH BARE SURFACES NO. 76 PER LSP-14-9010.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3394 PKG 69 (2)

REASON FOR EO: RIVET BREAKS OUT ON ASSY.

DESCRIPTION OF EO: IN F/D TRIMMED 3/8 IN MATL FROM -15.

GAEC EO RELEASE: R JK

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11 (23)	
LM		LTA-3DR/1(460)	
LM	LM-10 (40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	11/12/69			11/12/69	11/6/69	11/6/69	11/13/69
✓		✓			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

KC

~~GOVT~~ 11/7/69

PRIORITY: C

DRAWING TITLE: DOUBLER D/S RH & LH UPPER DECK ~ CAPSTRIP STRAP

DRAWING NO.: LDW280-18749

EO NO.: A1

ISSUED BY LIAISON J. STECEWYCZ X3604 SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18750

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66550	QUAL TEST (72)	1
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-66550	LM-10 (40)	2

PART NO. LDW280-18750-11

GAEC SCH NO.

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED —

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16-1/26/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XX=±.03, .XXX=±.010, ±0°-30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3994, PKG 96

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II (5)

DRAWN BY J. BIANCHINO 1/22/70
LAYOUT BY C. GREEN 1/23/70
CHECKED BY McCormack 1-23-70
GP LEADER 1/23/70
VEH DES INT Thoyusen 1-23-70
STRUCTURES
STRUCTURES 1/23/70
PROJ ENGR Thoyusen 1-23-70
REL GROUP J. Marab 1/26/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE~PLUME DEFLECTOR
QUADS I & IV-VERTICAL SUPPORT~

SIZE B
CODE IDENT NO. 26512
LDW280-18750

SCALE NONE
SHEET 1.00 OF 3

1-23-70

ENG 77.1 12-65

015

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18750-11	E	STRUT	STEEL TUBING	MIL-T-6736	4130	1.250D×.049×39.50	NOTE 3. CM	NOTE5	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM MILLING	LSP14-26201

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18750

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

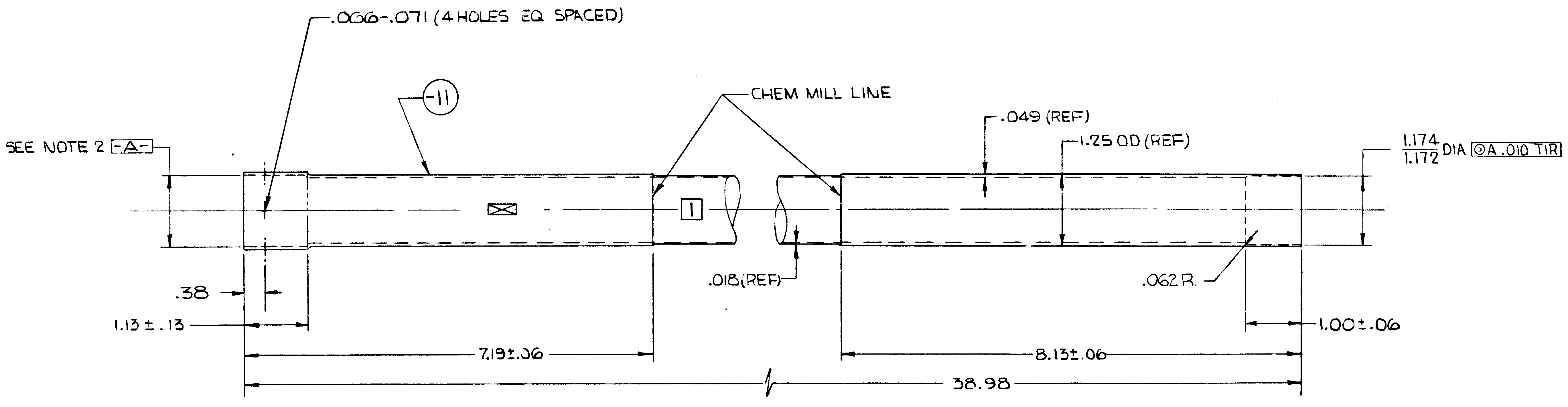
NAS 9-1100

LDW280-18750

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. MECHANICALLY EXPAND I D TO 1.200±.005 FOR DEPTH SHOWN.
3. STEEL HEAT TREAT PER LSP14-5100 TO 125,000 PSI, ROCKWELL 27C-32C.
4. -11 MAY BE MACHINED TO DIMENSIONS SHOWN, LARGER DIA TUBE MAY BE USED.
5. PARTS SHALL BE IMMERSION PHOSPHATE COATED PER LSP-14-9022 (COAT I.D. AND O.D.), DO NOT APPLY SUPPLEMENTARY OIL FINISH PER PARA. 3.5.7, PARTS WILL BE PAINTED ON LATER ASSY.


.066-.071 (4 HOLES EQ SPACED)
-11
CHEM MILL LINE
.049 (REF)
1.25 OD (REF)
SEE NOTE 2 -A-
1.174 / 1.172 DIA ◎A .010 TIR
1
.018(REF)
.062 R.
.38
1.13 ± .13
1.00±.06
7.19±.06
8.13±.06
38.98

LDW280-18750-11

CML: CHEM-MILL LINE TOLERANCE EXCEPT AS NOTED ETCH DEPTH .040 OR LESS: ± 1/16 ETCH DEPTH OVER .040: ± 1/32		
SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.018 +.003 -.002	.031 (REF)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18750	
SCALE FULL		SHEET 3.00	

ENG 73.3 REV 5-67

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEER'NG ORDER

ENG 32.1 REV

DWG. NO. LDW280-18750		EO NO. A1
CONTROL INFO NO. LM-5-22928		

ON-11

38.75
WAS
38.98

FOR REWORK OF EXISTING PARTS REMOVE MAT'L.
FROM $\frac{1.174}{1.172}$ DIA. END ℄ USE $.750^{+.06}_{-.00}$ DEPTH
IN LIEU OF 1.00±.06 DEPTH FOR $\frac{1.174}{1.172}$ DIA.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3994 PKG 96

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH INSTL.	ON-11 38.75 WAS 38.98	

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.	DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
LM	LM-10 (40) THRU LM-13 (43)			✓		✓	
	QUAL TEST (72)						

APPROVED BY	PBt				KC	CH	PBt	
DATE	7-22-70			7/21/70	7/7/70	7-7-70	7-22-70	7/13/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT-D/S-PLUME DEFLECTOR QUADS I & IV-VERTICAAL SUPPORT	LDW280-18750	A1

ISSUED BY LIAISON C. COSMA X 86755 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18750	EO NO. A2
CONTROL INFO NO. LDW280C1015	

IN F/D REVISE NOTE 4.

4. -11 MAY BE MACHINED TO DIMENSIONS SHOWN (ADD) EXCEPT THICKNESS AFTER MACHINING CENTER PORTION OF O.D. TO BE $.018^{+.008}_{-.002}$

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PK 96 P7

REASON FOR EO: INCREASED TOLER. REQD TO FACILITATE MANUFACTURE. (MWC)

DESCRIPTION OF EO: ADDED TO NOTE 4 EXCEPT THICKNESS AFTER MACHINING CENTER PORTION OF OD, TO BE $.018^{+.008}_{-.002}$

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-10 (40)	
		THRU LM-13 (43)	
LM		QUAL TEST (72)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT	REQD

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	10/6/70			10/6/70	10/6/70		10/6/70	10-6-70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT~D/S~PLUME DEFLECTOR~QDI & IV~VERTICAL SPRT	LDW280-18750	A2

10-6-70

ISSUED BY G. BELEV ~ G. HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18750 | EO NO. A3

CONTROL INFO NO. LM-5-24019

REVISE NOTE 5. ADD (SEE NOTE *)

ADD NOTE *. AN ACCEPTABLE ALTERNATE FINISH FOR -11 O.D. IS AN ALUMINUM METAL SPRAY PER LSP14-6401. PART MAY BE SPRAYED AFTER ASSY TO ROD ENDS & IT IS PERMISSIBLE FOR SPRAY TO OVERLAP ROD ENDS BY 1/2" MAX.

* USE NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE ALTERNATE O.D. FINISH.	REVISED NOTE #5. ADDED NOTE *.	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11 (41) & LM-12 (42)	

DRAWING CHANGE REQD: REVISE DWG ☐ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☐

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAC
						R.C.	J. Jarvis		
DATE 11-17-71						11/17/71	11-17-71	11/17/71	11-18-71

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT D.S.-PLUME DEF. QUADS I & IV	LDW280-18750	A3

ISSUED BY PROD. ENGRG. J. JARVIS SECTION VDI GROUP NO. 280 PL 025

01 NAS 9-1100

LDW280-18751

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66550	LM-14(44)	4
↕	↕	THRU	4
		LM-10(40)	4
LM	LDW280-66550	QUALTEST(72)	1
PART NO. LDW280-18751-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-66550	LM-14(44)	2 EA
↕	↕	THRU	2 EA
		LM-10(40)	2 EA
LM	LDW280-66550	QUALTEST(72)	1 EA
PART NO. LDW280-18751-11,-13,-15		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO		
		PRIM NO.	SHLS VK(001)	
LAST DASH NO. USED	-17	207	ME-16-	1/28/70

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
- DECIMALS – ANGLES
XX±.03 XXX±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3994 PKG 96	

ok

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	BILL OPITZ 1-23-70	RELIABILITY	
LAYOUT BY	C. GREEN 1-16-70		
CHECKED BY	L.A. 1-26-70		
GR. LEADER	1/26/70		
VEH. DES INT	1-26-70		
STRUCT	NM 1-27-70	PROJ ENGR	1/27/70
STRUCT	1/27/70	REL GROUP	1/28/70
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT
DESCENT STAGE~UPPER & LOWER
DIAGONAL~PLUME DEFLECTOR SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LWD280-18751
SCALE NONE		SHEET 1.00 OF 3

CDR~1-27-70

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NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18751-11	E	STRUT	TITANIUM TUB.	AMS4942		1.500X.035X44.82	CM	NOTE 2	
		-13	↕	↕	↕	↕		1.500X.035X47.41	↕	↕	
		-15						1.500X.035X46.66			
		LDW280-18751-17	E	STRUT	TITANIUM TUB.	AMS4942		1.000X.035X34.51	CM	NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						CM	CHEM-MILL	LSP-14-26300

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18751
SCALE NONE
SHEET 2.00

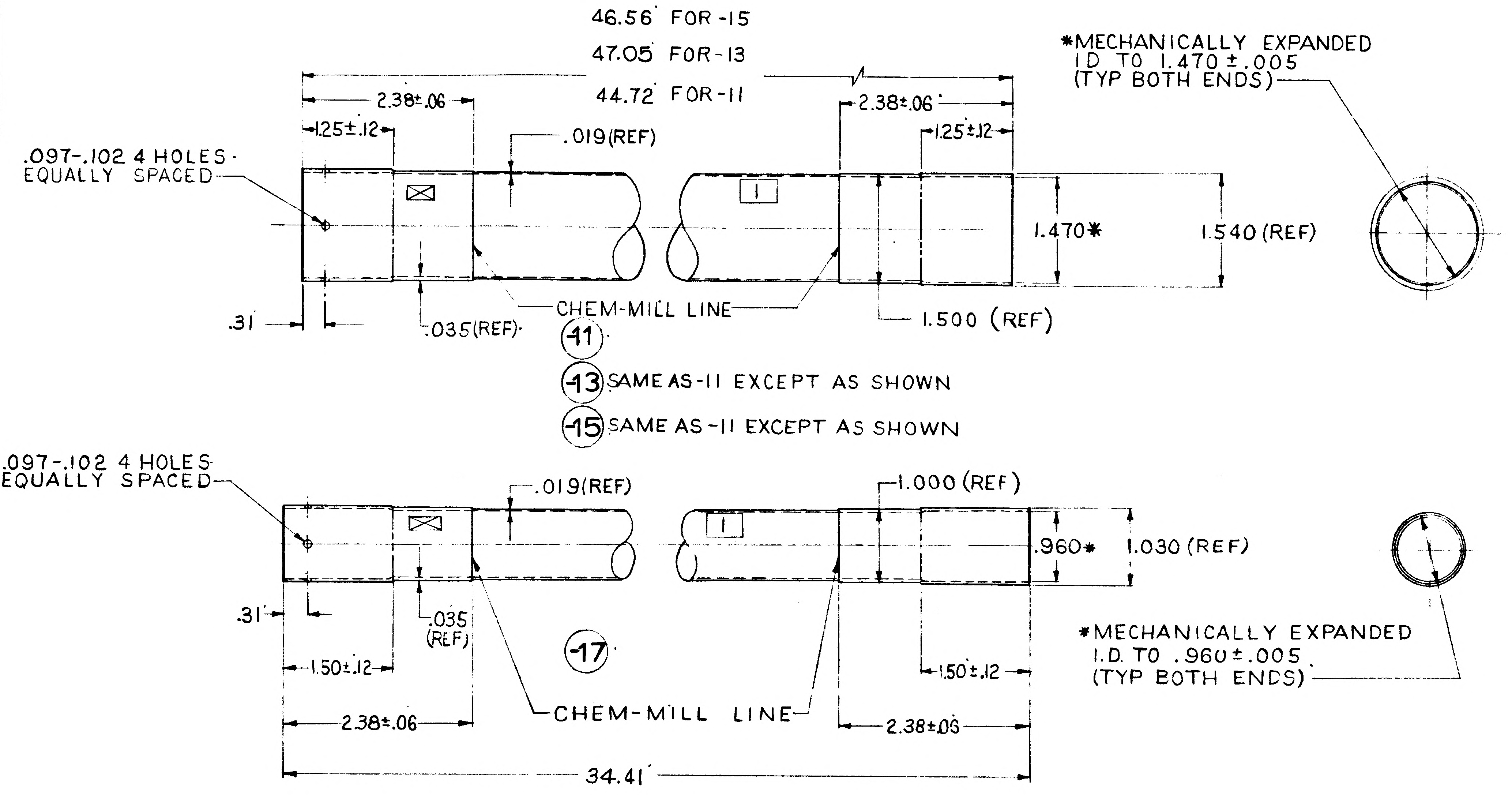
ENG 77.2 7-65

0 1

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
2. PAINT WITH LSM-14-4201 TYPE I ALUMINUM PIGMENTED SICON 3X245. APPLY PER LSP-14-4506.


46.56 FOR -15
47.05 FOR -13
44.72 FOR -11
2.38±.06
1.25±.12
.019 (REF)
2.38±.06
1.25±.12
.097-.102 4 HOLES EQUALLY SPACED
*MECHANICALLY EXPANDED I.D. TO 1.470±.005 (TYP BOTH ENDS)
1.470*
1.540 (REF)
.31
.035 (REF)
CHEM-MILL LINE
1.500 (REF)
-11
-13 SAME AS -11 EXCEPT AS SHOWN
-15 SAME AS -11 EXCEPT AS SHOWN
.097-.102 4 HOLES EQUALLY SPACED
.019 (REF)
1.000 (REF)
.960*
1.030 (REF)
.31
.035 (REF)
-17
1.50±.12
1.50±.12
*MECHANICALLY EXPANDED I.D. TO .960±.005 (TYP BOTH ENDS)
2.38±.06
CHEM-MILL LINE
2.38±.06
34.41

LDW280-18751-11, -13, -15 & -17

CML: CHEM-MILL LINE TOLERANCE EXCEPT AS NOTED ETCH DEPTH .040 OR LESS: ± 1/16 ETCH DEPTH OVER .040: ± 1/32		
SYM	THICKNESS AFTER CHEM-MILLING	DEPTH OF CUT
1	.019 +.003 -.002	.016 (REF)
☐		
☐		

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18751
SCALE FULL		SHEET 3.0

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18751 | EO NO. A1

CONTROL INFO NO. LDW 280 C 0067

IN M/B FOR -15, N/A LDW280-66552, 4 REQD, EFF LM-10(40) THRU LM-14(44) & QUAL TEST (72) WAS N/A LDW280-66550, 4 REQD, EFF LM-10(40) THRU LM-14(44) & QUAL TEST (72).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 96 (5)

REASON FOR EO: NEXT ASSY CHANGE WILL ALLOW ADJUSTMENT OF STRUT AND ROD END ORIENTATION ON INSTL.

DESCRIPTION OF EO: FOR -15, N/A LDW280-66552 WAS LDW280-66550

GAEC EO RELEASE: VK 2/27/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	LM-14(44)
		QUAL TEST(72)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	2-25-70		2/25/70	2/26/70		2-27-70	2/27/70
	VD1						

PRIORITY: C

DRAWING TITLE: STRUT - D/S - UPPER & LOWER DIAGONAL - PLUME DEFLECTOR SUPPORT

DRAWING NO.: LDW280-18751

EO NO.: A1

CDR 2/27/70

ISSUED BY E. MILLER X 87222 SECTION VEH DES INT GROUP NO. 335 PL 25

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18751		EO NO.	A2
CONTROL INFO NO. LM, 5-22516			

(E.O. A1)

IN M/B FOR-15, N/A LDW 280-66552, 4 REQ'D EFF LM-10(40) THRU LM-14 (44) & QUAL TEST (72) WAS N/A LDW280-66550, 4 REQ'D, EFF LM-10(40) THRU LM-14(44) & QUAL TEST (72).

SHOULD READ

IN M/B FOR -15 REVISE N/A, LDW 280-66552 WAS LDW 280-66550; 2 REQ'D/MOD, EFF. LM-10(40) THRU LM-14(44) & 1 REQ'D FOR QUAL TEST(72).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3994

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH N/A DWGS	FOR-15 QTY REQD FOR N/A LDW280-66552 2 REQD WAS 4 REQD.	Ⓡ

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM10(40) THRU	
		LM14(44)	
		QUAL TEST(72)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓			✓						KC	CR		
				DATE	5-15-70			5/14/70	5/12/70	5/12/70	5/18/70	5-18-70
				5/13/70	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT - D/S - UPPER & LOWER DIAGONAL - PLUME DEFLECTOR SUPPORT	LDW280-18751	A2

ISSUED BY LIAISON J. PAULSEN X86755 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18751 | EO NO. A3

CONTROL NO. LM-5-23066

ON-11	ON-17
44.65 FOR-11	33.84
WAS	WAS
44.72 FOR-11	34.41

FOR REWORK OF EXISTING -11 & -17 PARTS

REMOVE MAT'L. FROM END OF TUBE WITHOUT
.097-.102 HOLES & USE.
USE INSTALLED PARTS.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ LC9 3994

REASON FOR EO: TO AGREE WITH INSTL.

DESCRIPTION OF EO: ON-11 44.65 FOR-11 WAS 44.72 FOR-11
ON-17 33.84 WAS 34.41

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	QUAL TEST (72)		
	LM-10(40) THRU LM-13(43)		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	PBT				KC	CR		
DATE	7-30-70			7/2?/70	7/27/70	7/27/70	7/30/70	7/28/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DEPT~~

PRIORITY: C

DRAWING TITLE: STRUT ~ O/S ~ UPPER FWR. DIAG. ~ PLUME DEFLECTOR SUPT.

DRAWING NO.: LDW280-18751

EO NO.: A3

ISSUED BY: LIAISON C. COSMA 86755 SECTION: VDI GROUP NO. 335 PL. 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18151
EO NO.	A4
CONTROL INFO NO.	LM-5-23962

IN L/M FOR -11 ADD SEE NOTE *

IN F/D ADD NOTE *

ADD NOTE *: -11 MAY BE MADE FROM TI-5AL-2.5V, 1.500D X .032 SEAMLESS TITANIUM TUBING, COLD WORKED AND STRESS RELIEVED, THAT MEETS THE FOLLOWING REQUIREMENTS

CHEMISTRY — WEIGHT PER CENT

AL	2.5-5.5
V	2.0-3.0
Fe	0.30 MAX
C	0.05 MAX
N	0.02 MAX
O	0.12 MAX
H	0.015 MAX
Ti	BALANCE

MECHANICAL PROPERTIES

F_{tu}	125000 PSI MIN
F_{ty}	105000 PSI MIN (0.2% OFFSET)
% ELONG	10.0% MIN (2 INCHES)

THE MAXIMUM ROOM TEMPERATURE TENSILE PROPERTIES OF THE TUBING SHALL NOT EXCEED 20000 PSI ABOVE THE SPECIFIED MINIMUMS. TUBING SHALL BE CAPABLE OF BEING FLARED TO A DIAMETER OF 1.2 X NOMINAL O.D. AND SHALL REMAIN SOUND, UNIFORM AND SMOOTH. DETAILS MADE FROM THIS MAT'L ARE EQUIVALENT TO, AND MAY BE SUBSTITUTED FOR, DETAILS MADE FROM TITANIUM PER AMS4942, 1.50 OD X .035

(SHOP REF INFO)
THIS MATERIAL IS EQUIVALENT TO CORPORATE SPECIFICATION GM 3107 MATERIAL.

* USE NEXT AVAIL NOTE NO.

CL II ENG CHG	X
REASON FOR EO	ALTERNATE MAT'L REQMT.
DESCRIPTION OF EO	FOR -11, ADDED NOTE *.
MODEL	LM
EFFECTIVITY	NOT REQD
DRAWING CHANGE REQD	X REVISE DWG
DISPOSITION OF PARTS	NOT REQD
DATE	4/29/71
PRIORITY	E
DRAWING TITLE	STRUT - D/S - UPPER & LOWER DIAGONAL - PLUME DEFLECTOR S/A
DRAWING NO.	LDW280-18151
EO NO.	A4

ISSUED BY PROD'N ENG'G ART WILSON X86165 SECTION VDI GROUP NO. 0335 M 025

NAS 9-1100

01

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18751
EO NO. A5
CONTROL INFO NO. LM-5-24004

ON -13 ADD SEE NOTE *.

IN FLD. ADD NOTE *.

ADD NOTE *: -13 MAY BE MADE FROM TI-3AL-2.5V, 1.500 O.D. x .042 SEAMLESS TITANIUM TUBING, COLD WORKED AND STRESS RELEIVED, THAT MEETS THE FOLLOWING REQUIREMENTS

CHEMISTRY			
	AL	2.5-5.5	WEIGHT PER CENT.
	V	2.0-3.0	
	Fe	0.30 MAX.	
	C	0.05 MAX.	
	N	0.02 MAX.	
	O	0.12 MAX.	
	H	0.015 MAX.	
	TI	BALANCE	

MECHANICAL PROPERTIES		
	FTU	125,000 PSI MIN.
	FTY	105,000 PSI MIN. (0.2% OFFSET)
	% ELONG	10.0% MIN. (2 INCHES)

THE MAXIMUM ROOM TEMPERATURE TENSILE PROPERTIES OF THE TUBING SHALL NOT EXCEED 20,000 PSI ABOVE THE SPECIFIED MININUMS. TUBING SHALL BE CAPABLE OF BEING FLARED TO A DIA. OF 1.2 x NOMINAL O.D. AND SHALL REMAIN SOUND, UNIFORM AND SMOOTH. DETAILS MADE FROM THIS MATL ARE EQUIVALENT TO, AND MAY BE SUBSTITUTED FOR, DETAILS MADE FROM TITANIUM PER AMS 4942, 1.50 O.D. x .035.

(SHOP REF INFO.)

THIS MATERIAL IS EQUIVALENT TO CORPORATE SPECIFICATION GM 3107 MATERIAL.

* USE NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ALTERNATE MATL. REQM'T.

DESCRIPTION OF EO: FOR -13 ADDED NOTE *

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D.	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	9-7-71			9-14-71	9/7/71	9-7-71	9/7/71	9-7-71
7-7-71	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: E

DRAWING TITLE: STRUT D.S.-UP & LWR. DIAG. PLUME DEF.

DRAWING NO. LDW280-18751

EO NO. A5

ISSUED BY ~~PROD'N ENG'R'G~~ J. JARVIS SECTION VD I GROUP NO. 0335 PL 035

LDW280-18752

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW330-60012	LM-14 (44)	1
		LM-13(43)	1
		LM-12 (42)	1
		LM-11(41)	1
	LDW330-60012	LM-10(40)	1
	LDW330-52006	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
LM	LDW330-52006	LM-9 (39)	1

PART NO. LDW280-18752-1

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -11

GRUMMAN REL INFO
PRIM NO. JK(001) 207 ME-16-1/22/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS - ANGLES .XX±.03 .XXX±.010 ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 5374 PKG 50

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J. VICINANZA 1/20/70
LAYOUT BY T. COTTER TC
CHECKED BY T.J. Cotter 1/21/70
GP LEADER 1/21/70
VEH DES INT 1/21/70
STRUCTURE
STRUCTURE WJH 1/21/70
PROJ ENGR 1/21/70
REL GROUP 1/24/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE ASSY
DESCENT STAGE - H_2O TANK TRANSDUCER SPT

SIZE B CODE IDENT NO. 26512 LDW280-18752
SCALE NONE SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 01-21-70

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NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
4		MS20426AD3	E	RIVET	GOVT STD						
2		NAS697A08	E	NUT PLATE	GOVT STD						
1		LDW280-18752-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.100x4x4	NONE	88	
		LDW280-18752-1	E	PLATE ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18752

SCALE NONE | SHEET 2.00

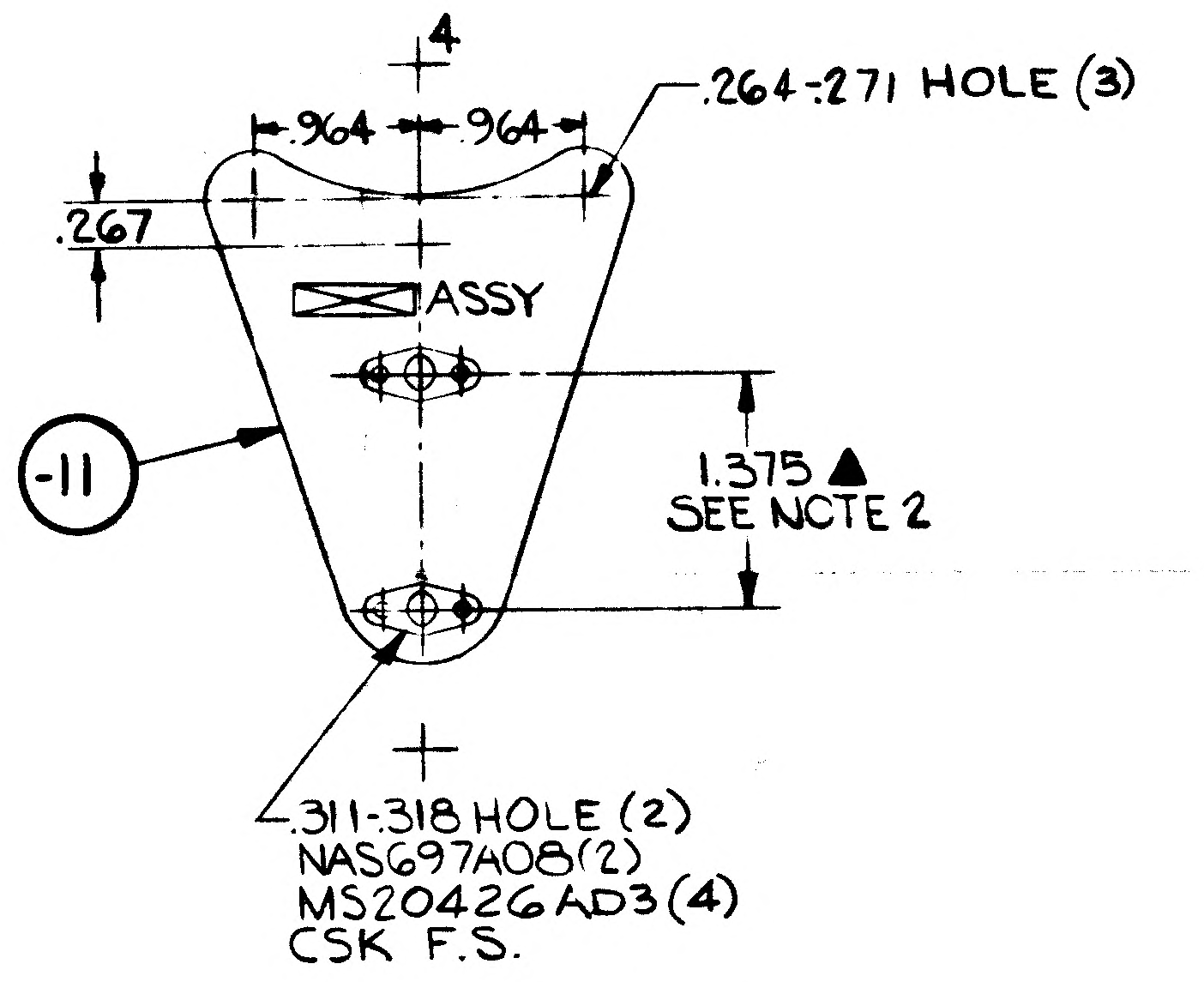
ENG 77.2 7-66

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH LSP-14-15302	✓
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓

NOTES.
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. DIMENSION MARKED ▲ FROM PART OF AN INTERCHANGEABLE INTERFACE. SEE DWG LSC 360-601-203 FOR CORRESPONDING HOLE PATTERN.


4
.964
.964
.264-.271 HOLE (3)
.267
ASSY
-11
1.375 ▲
SEE NOTE 2
.311-.318 HOLE (2)
NAS697A08 (2)
MS20426AD3 (4)
CSK F.S.

LDW280-18752-1 ASSY

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE C	CODE IDENT NO. 26512	LDW280-18752	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18752
EO NO. A1
CONTROL INFO NO. LM 5-22235

ON -1 ASSY. ".311-.318 HOLE (2)"

S/B ".165-.171 HOLE (2)"

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 5374

REASON FOR EO: TO AGREE WITH CALLOUT FOR #8 PLATE NUT.

DESCRIPTION OF EO: ON -1
.165-.171 HOLE (2) WAS .311-.318 HOLE (2)

R (5)

GAEC EO RELEASE	
CB	2-15-70
JK	2/17/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-9 (39)	THRU
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP — NOT REQD

APPROVED BY					KC			
DATE	2/13/70			2/12/70	2/5/70	2-4-70	2/13/70	2/9/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: PLATE ASSY. - D/S H_2O TANK-TRANSDUCER SPT.

DRAWING NO. LDW280-18752

EO NO. A1

ISSUED BY LIAISON HEDGES- 86755 SECTION VDI GROUP NO. 280 PL. 25

LDW280-18753

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	SEE NOTE 3	TM-15(54)	1
	LDW280-60571	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60571	LM-10(40)	1
PART NO. LDW280-18753-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	SEE NOTE 3	TM-15(54)	1
	LDW280-60571	LTA-3DR/1(460)	2
		LTA-11(23)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60571	LM-10(40)	2
PART NO. LDW280-18753-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED ~
LAST DASH NO. USED -13
GRUMMAN REL INFO
PRIM NO. 207 JK(001) ME-16- 2/6/75

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES
.XX ±.25 .XXX= ±.125 ± 1°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994 PKG94

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY E. BECKETT 1-30-70
THERMO Gaff 2-5-70 (P)
LAYOUT BY P. ABRAMS
CHECKED BY 2-3-70
GP. LEADER 2/3/70
VEH. DES. INT Thorjusen 2-3-70
STRUCTURES
STRUCTURES WJH 2/4/70
PROJ ENGR Thorjusen 2-4-70
REL GROUP 2-5-70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

INSULATION
DESCENT STAGE-QUAD I-PAYLOAD
TRUSS SUPPORT-INTERNAL

SIZE B
CODE IDENT NO. 26512
LDW280-18753
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2-6-70

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18753-13	E	INSULATION	SEE NOTE 1				NONE	NONE	
								LDW280-18753-11	E	INSULATION	SEE NOTE 1				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-18753

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

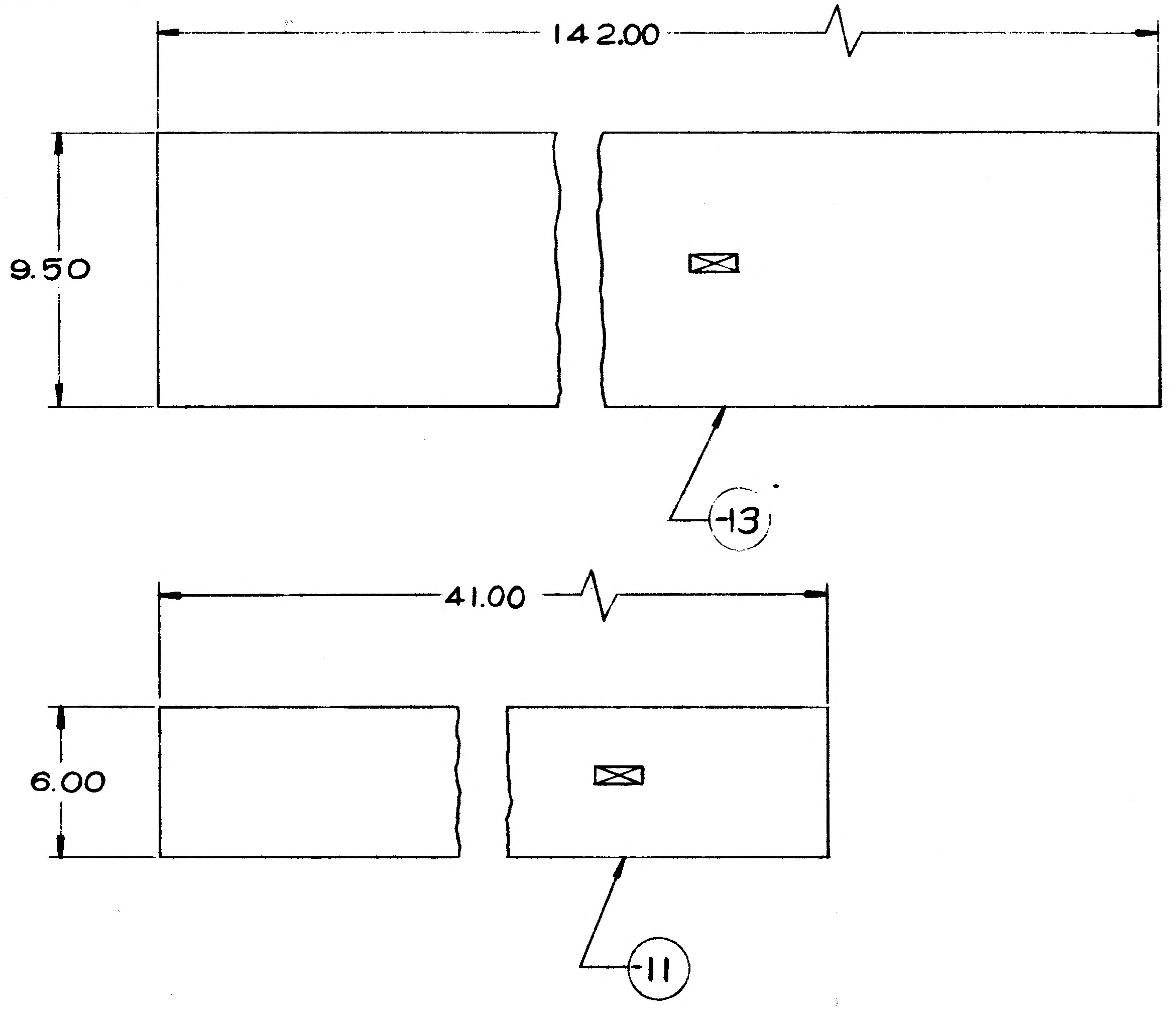
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. -11 & -13 TO BE MADE FROM .00015 ALUMINIZED MYLAR PER LSM14-5302.
2. MFG. BLANKETS PER LPC280-1. MATERIAL TO BE PREWRINKLED BEFORE TRIMMING.
3. -11 & -13 TO BE USE IN CONJUNCTION WITH LTP915-22004.



GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18753
SCALE 1:4		SHEET 300

ENG. 70.2 REV. 5-68

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18753 | EO NO. A1
CONTROL INFO NO. LDW280C0220

FOR-11&-13 REMOVE LTA-11(23) & LTA-3DR\1(460)REQMTS
FOR N/A LDW280-60571

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ ICD 3994 PK 94

REASON FOR EO: PARTS NOT REQD FOR TEST

DESCRIPTION OF EO: FOR-11&-13 REMOVED LTA-11(23)& LTA-3DR\1 (460)REQMTS

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	
		LTA-3DR\1(460)	
LM			

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | ✓ SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	3-24-70			3/24/70	3/24/70		3/25/70	3/25/70

PRIORITY: C

DRAWING TITLE: INSULATION ~ D/S ~ QUAD I PAYLOAD TRUSS SUPT ~ INTERNAL

DRAWING NO. LDW280-18753

EO NO. A1

032570
ISSUED BY G.BELEV ~ G.HANSMANN X87222 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO 1869
CONTROL INFO NO. LDW280C0237

IN M/B FOR THE FOLLOWING DWGS Δ, REVISE THE N/A FOR TM-15(54) TO LSK-915-1744, WAS "SEE NOTE *". QUANTITY REMAINS THE SAME.

IN FLD DELETE NOTE *

DWG NO. Δ	DASH NO.	CHANGE LETTER	DWG NOMENCLATURE	NOTE *
✓LDW280M18227	-11	A2	FIT, D/S, QDI, UP DK, PAYLD SUPT	SEE EO A1
✓LDW280M18226	-11	A2	ROD END; D/S, QDI PAYLD VERT ST LR	SEE EO A1
✓LDW280M18228	-11	A3	FIT; D/S, QUAD I; LWR DIAG; COR POST AB	SEE EO A2
✓LDW280M18229	-11	A2	ROD END; D/S; QDI PAYLD VERT ST UP	SEE EO A1
✓LDW280-18753	-11 & -13	A2	INSULATION; D/S; QUAD I, PAYLD SUPT	3
LDW280M18290	-11 & -13	A2	BOLT (SP) D/S; QD IV PAYLD SPRT TRUSS	SEE EO A1
LDW280M18225	-13	A5	FIT, D/S QUAD I; LWR DIAG PAYLD SUPT	SEE EO A1
LDW280M18292	-11	A4	FIT; D/S; QDI; LWR DIAG; PAYLD DEPLOY	SEE EO A2
LDW280M18294	-11	A1	FITTING; D.S., QDI-UP DK PAYLD SUPT	1
LDW280-18923	-13 & -15	A3	TUBE; D/S QD I LWR DIAG PAYLD SUPT	SEE EO A2
LDW280-18922	21, 23, 25 & R	A5	R, D/S, QDI; LWR DIAG, OUTBD SPLICE	SEE EO A2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3994 PKG 94

REASON FOR EO: REQUIRED FOR LTP915-22004

DESCRIPTION OF EO: FOR DWG Δ; N/A WAS "SEE NOTE *". REMOVED NOTE *

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-15(54)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EQ

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY								
DATE	3-26-70			3/25/70	3/26/70		3/26/70	3/27/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C | DRAWING TITLE: SEE ABOVE | DRAWING NO.: LEO 280 | EO NO.: 1869

3/27/70
ISSUED BY TIENKEN, G HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18754

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LM-13 (43)	1 EA
↕	↕	LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60587	LM-10 (40)	1 EA
PART NO. LDW 280-18754-13-15 & -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LM-13 (43)	1
↕	↕	LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60587	LM-10 (40)	1
PART NO. LDW280-18754-11		GAEC SCH NO.	

WORK PKG FUNCTION NO 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES XX± .03 XXX±.010 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 5601 PKG #50

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY A. LITVINOFF 7-20-70

LAYOUT BY G. BARNES 7-28-70 GWB

CHECKED BY L. Marsh

GR LEADER 7/27/70

VEH DES INT 7-28-70

STRUCT NM 7-28-70

STRUCT 7/28/70

PROJ ENGR 7/28/70

REL GROUP L. Marsh 7/24/70

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, L. I., NEW YORK

CHANNEL
DESCENT STAGE-FWD UPR DECK
PLSS GOX LINE SPT

SIZE B

CODE IDENT NO. 26512

LDW280-18754

SCALE NONE

SHEET 1.00 OF 3.

ENG 77.1 12-65

CDR 7/24/70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18754-17	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075 W	.050×3×3	T6	88	
		↕ -15	↕	CLIP	↕	↕	↕	.050×2×3	↕	↕	
		-13		CHANNEL				.040×3×5			
		LDW280-18754-11	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075 W	.040×3×10	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AEROSPACE CORPORATION , BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18754

SCALE NONE

SHEET 2.00

EN6 77.2 7-64

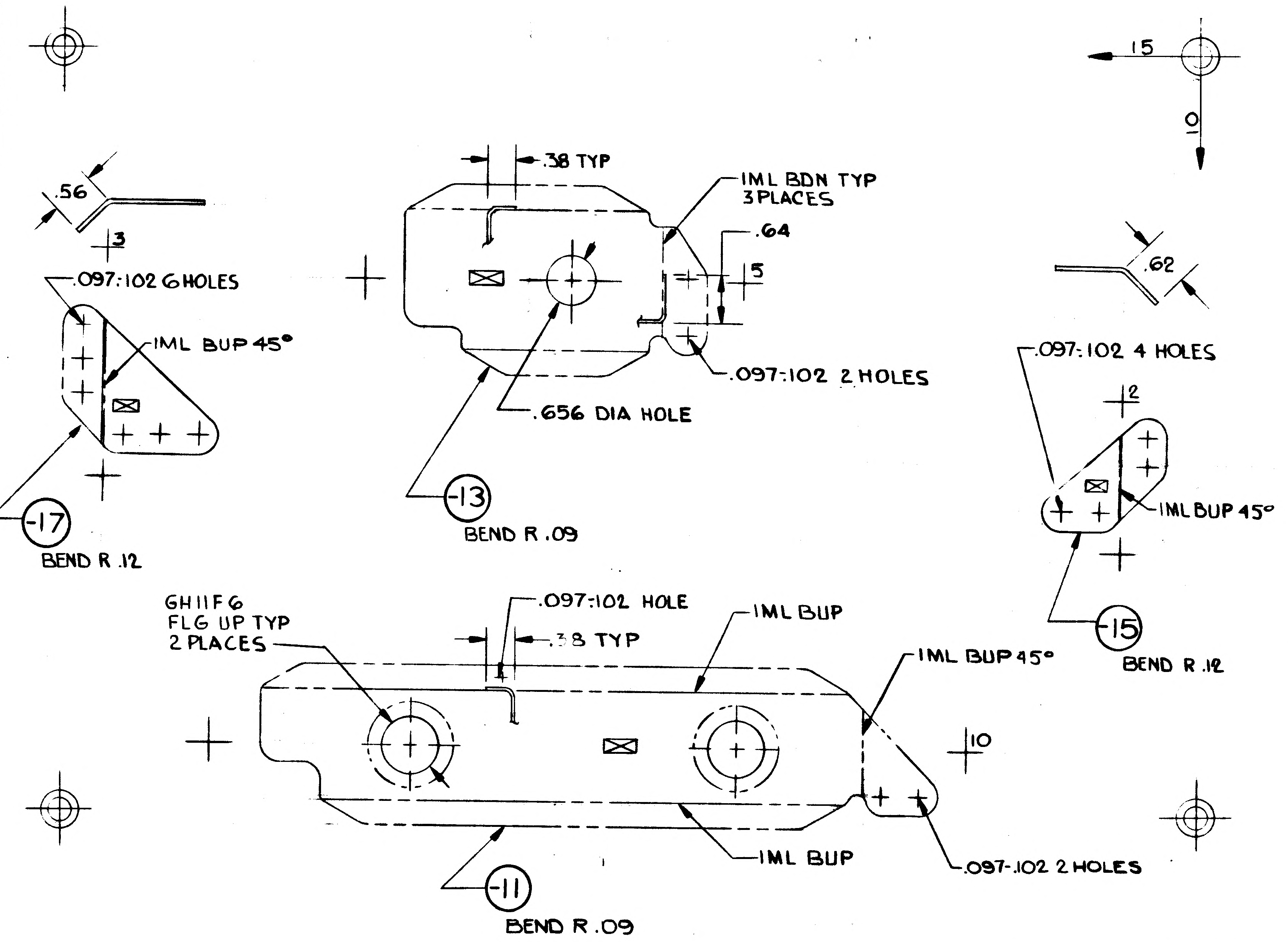
01

NAS 9-1100

TRAM OK

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY~~.	√
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± .03	√

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



.15
.10
.56
.3
.097:.102 6 HOLES
IML BUP 45°
-17
BEND R .12
.38 TYP
IML BDN TYP
3 PLACES
.64
.5
.097:.102 2 HOLES
.656 DIA HOLE
-13
BEND R .09
.62
.097:.102 4 HOLES
.2
IML BUP 45°
-15
BEND R .12
GH11F6
FLG UP TYP
2 PLACES
.097:.102 HOLE
.38 TYP
IML BUP
IML BUP 45°
.10
IML BUP
.097-.102 2 HOLES
-11
BEND R .09

LDW280-18754

LDW280-18754

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
C	26512	LDW280-18754	
SCALE FULL		SHEET 3.00	

2 FOR PHOTO REPRODUCTION 1

NAS 9-1100

LDW280-18755

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW230-54526	LM14(44)	1
↕	↕	LM13(43)	1
		LM12(42)	1
		LM11(41)	1
LM	LDW280-54526	LM10(40)	1

PART NO. LDW280-18755-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60597	LM14(44)	1 EA
↕	↕	LM13(43)	1 EA
		LM12(42)	1 EA
		LM11(41)	1 EA
LM	LDW230-60597	LM10(40)	1 EA

PART NO. LDW280-18755-1, -13, & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	—
LAST DASH NO. USED	-17

GRUMMAN REF INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES
XX ±.03 XXX ±.010 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD5538 PKG52

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J. BIACHINO 5-19-70		
LAYOUT BY	G. BARNES GWB 5-21-70		
CHECKED BY	JP COBB 5-21-70		
GR LDR	5/22/70		
VEH DES INT	5-22-70		
STRUCT.	NM	PROJ ENGR	R. PHILLIPS / RPF 5-22-70
STRUCT.	5/22/70	REL GROUP	5/22/70

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, L. I., NEW YORK

BRACKET ASSY
DESCENT STAGE-FWD END PANEL-POWER CONNECTOR-H_2O & N_2 FILL

SIZE	CODE IDENT NO.	
B	26512	LDW280-18755
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 5/22/70

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A.R.		NAS1097AD3	E	RIVET	IND STD						
4		NAS680C3		NUT-PLATE	IND STD						
		LDW280-18755-17		BRACKET	AL ALY SH	QQ-A-250/4	2024	.040 × 4 × 5	T42	88	
		-15		CHANNEL			2024-T3	.040 × 3 × 3	NONE		
		-13		CHANNEL			2024-T3	.040 × 3 × 3			
1		-11		BRACKET	AL ALY SH	QQ-A-250/4	2024-T3	.032 × 4 × 12	NONE	88	
		LDW280-18755-1	E	BRKT ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T42	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AEROSPACE CORPORATION , BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18755
SCALE NONE
SHEET 2.00

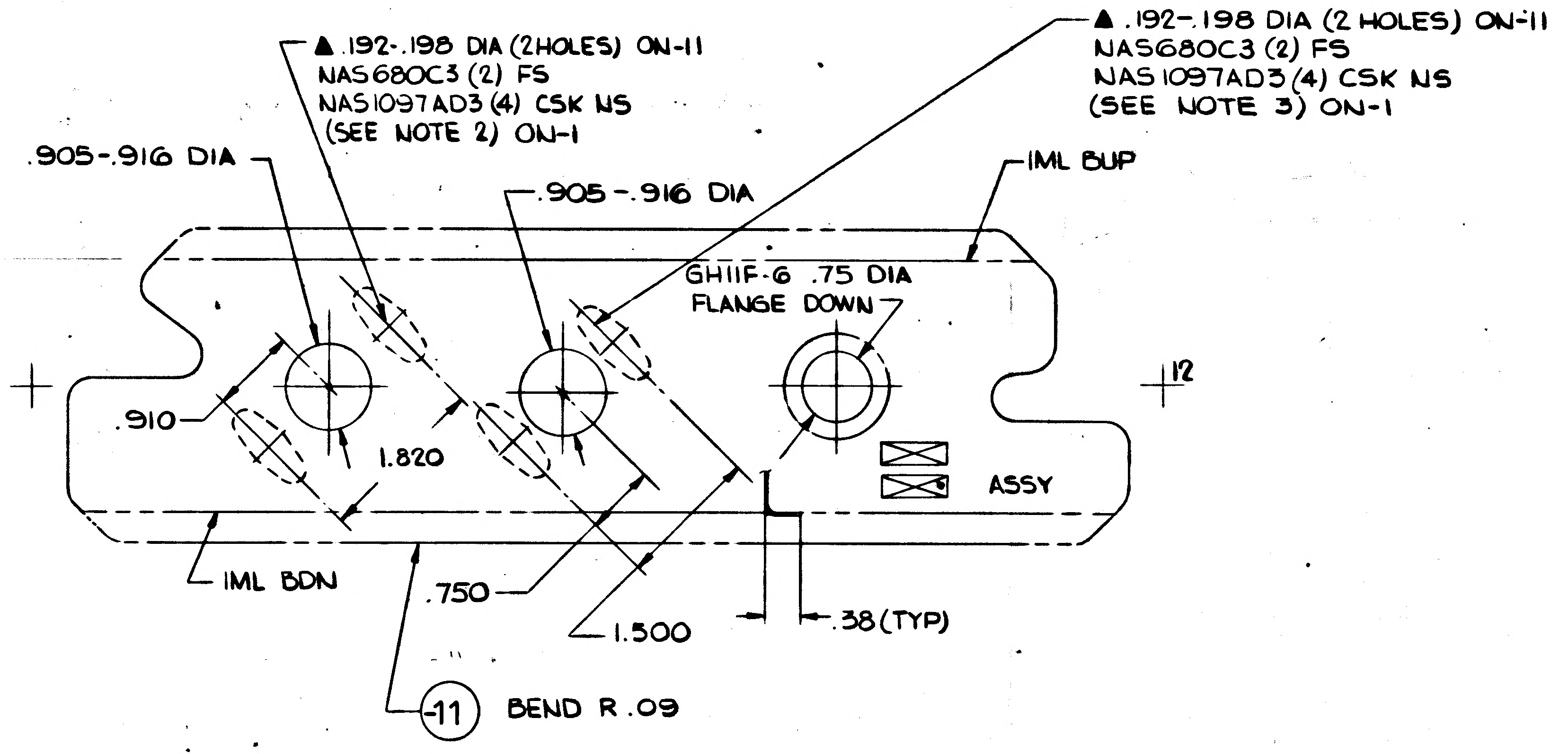
ENG 77.2 7-64

01

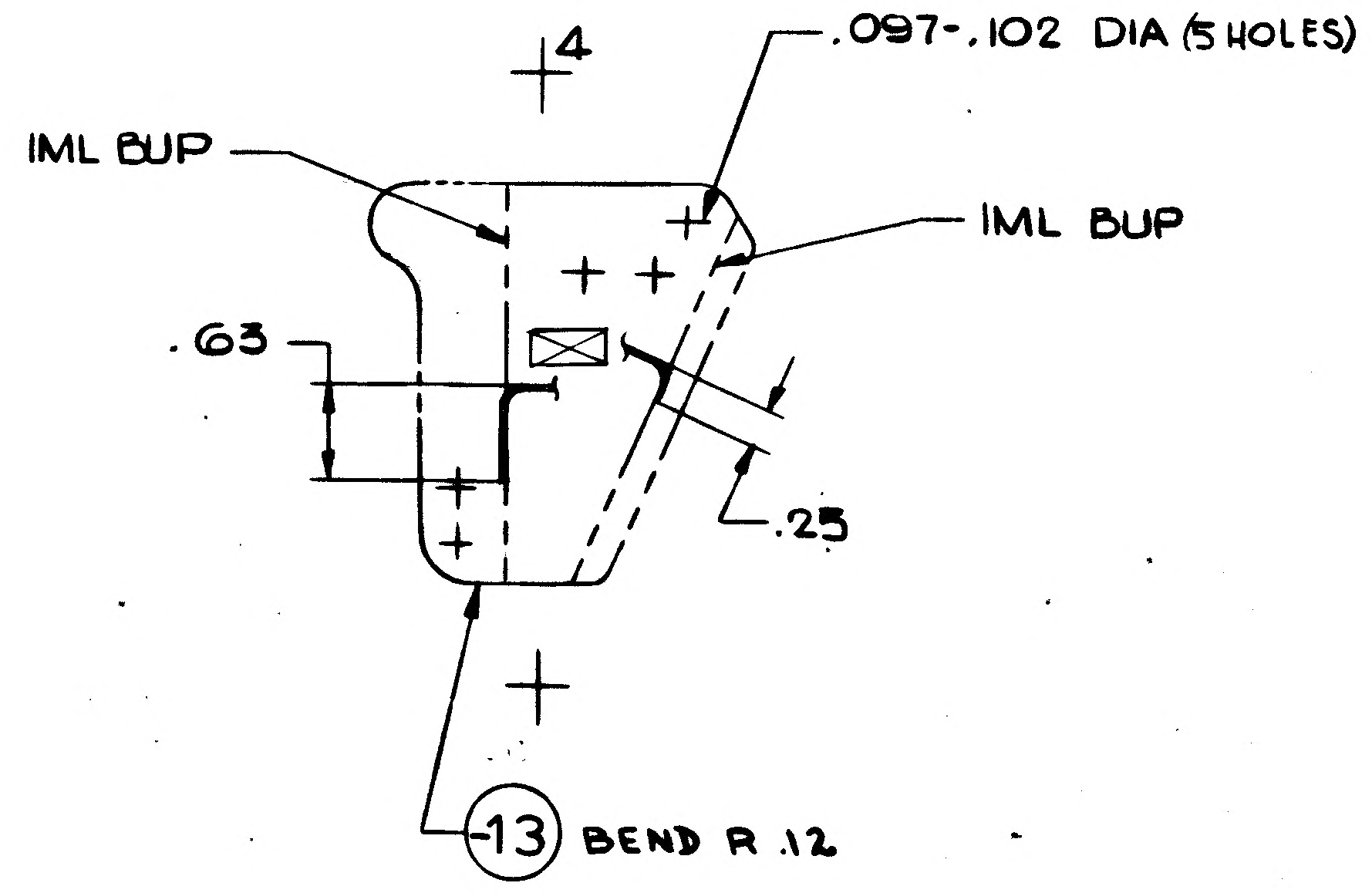
NAS 9-1100

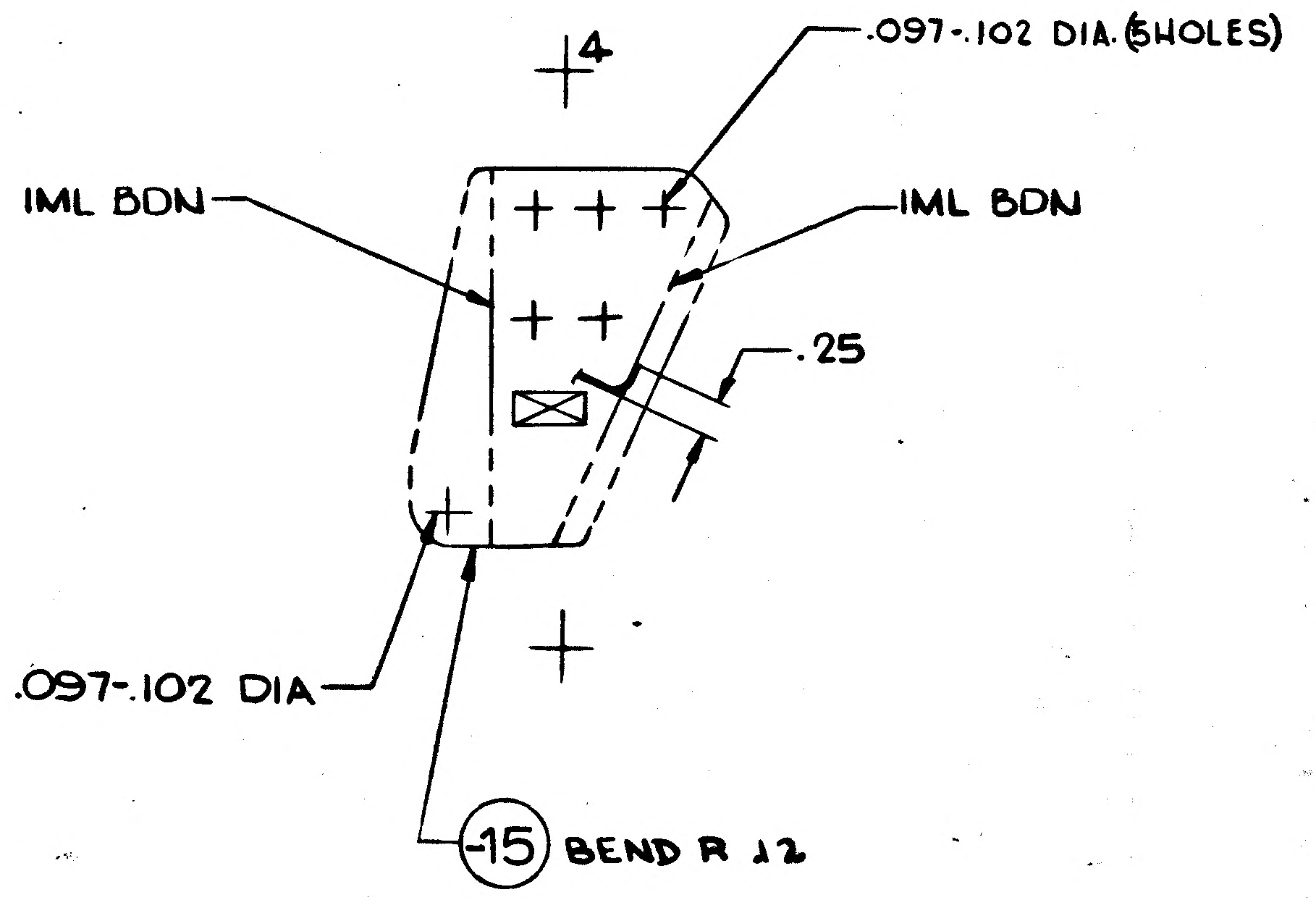
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP14-15302	✓
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

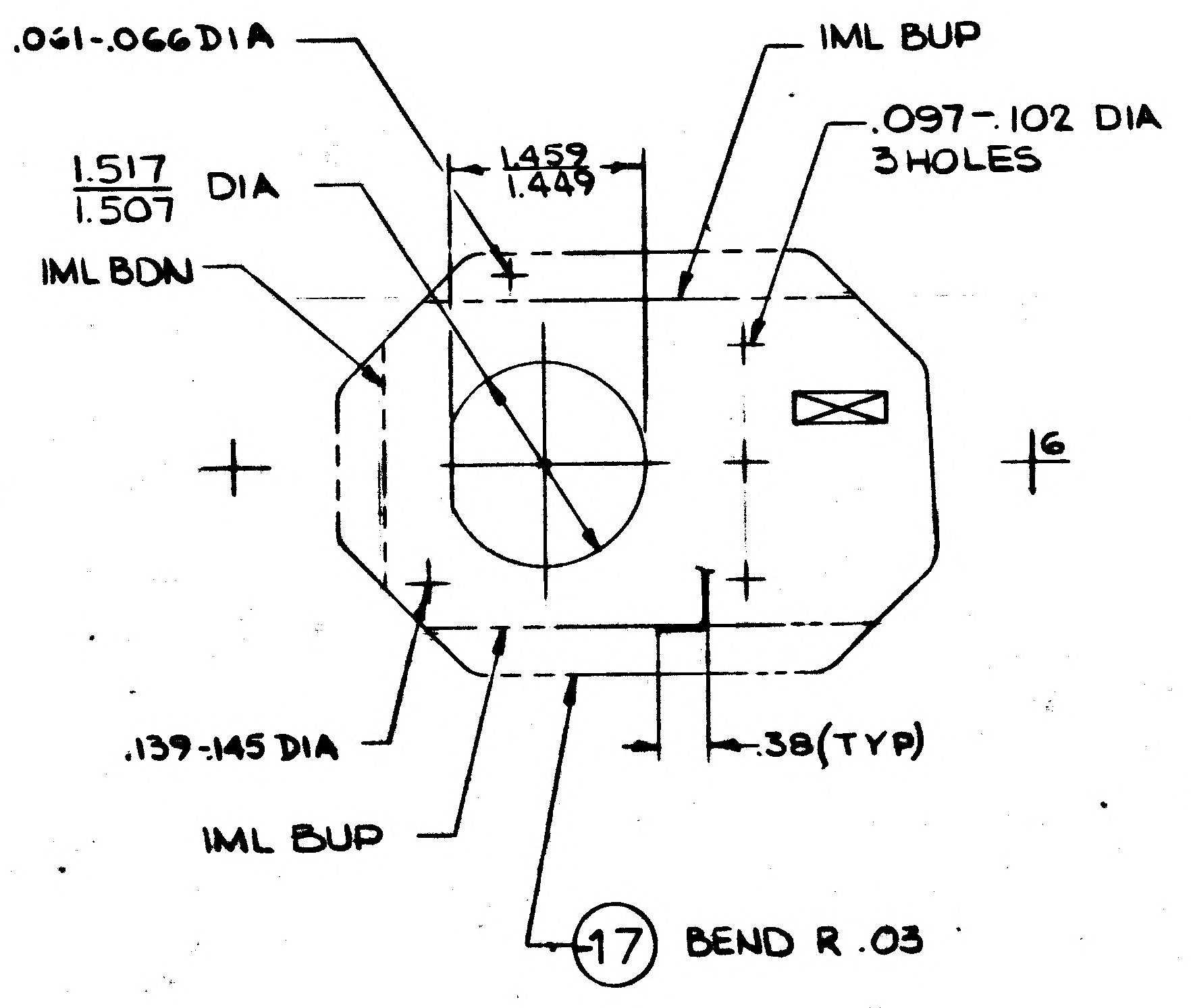
NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FOR HOLES MARKED ▲ SEE LSC330-419-3-2 FOR CORRESPONDING HOLE PATTERN.
3. FOR HOLES MARKED ▲ SEE LSC330-418-1-4 FOR CORRESPONDING HOLE PATTERN.


▲ .192-.198 DIA (2HOLES) ON-11
NAS680C3 (2) FS
NAS1097AD3 (4) CSK NS
(SEE NOTE 2) ON-1
▲ .192-.198 DIA (2 HOLES) ON-11
NAS680C3 (2) FS
NAS1097AD3 (4) CSK NS
(SEE NOTE 3) ON-1
.905-.916 DIA
.905-.916 DIA
IML BUP
GH11F-6 .75 DIA
FLANGE DOWN
12
.910
1.820
ASSY
IML BDN
.750
1.500
.38 (TYP)
-11 BEND R .09

LDW280-18755-1 ASSY


4
.097-.102 DIA (5 HOLES)
IML BUP
IML BUP
.63
.25
-13 BEND R .12


4
.097-.102 DIA (5HOLES)
IML BDN
IML BDN
.25
.097-.102 DIA
-15 BEND R .12


.061-.066 DIA
IML BUP
.097-.102 DIA
3 HOLES
1.517
1.507 DIA
1.459
1.449
IML BDN
6
.139-.145 DIA
.38 (TYP)
IML BUP
-17 BEND R .03

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
F	26512	LDW280-18755	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

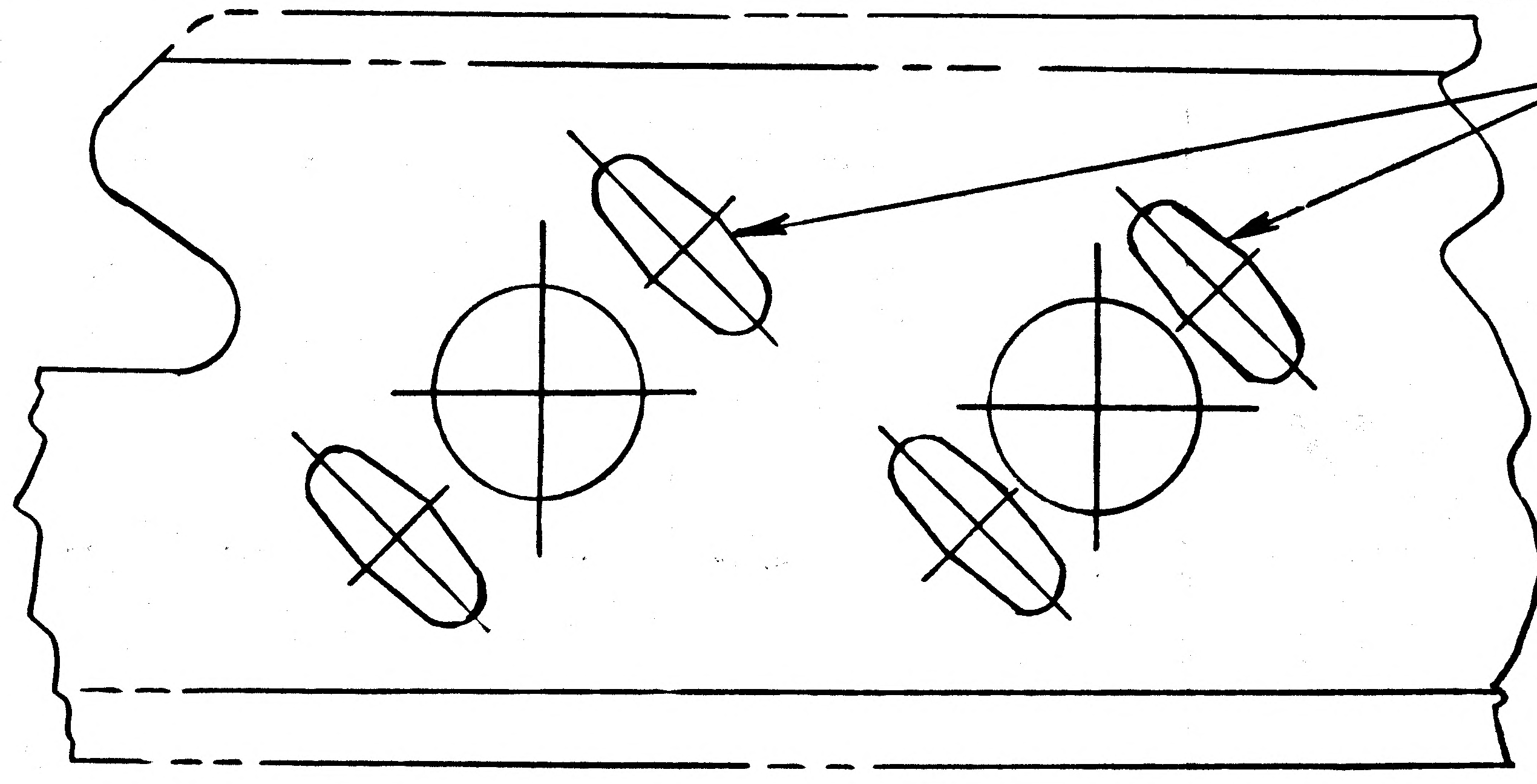
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18755

EO NO. A1

CONTROL INFO NO. LM-5-22933



CHANGE "FS" TO "NS" (2 PLACES) (ON INSTL OF NAS680C3 HDWE)

REWORK NOTE:
ON EXISTING PARTS WITH PLATE NUTS INSTALLED, REMOVE NAS680C3 (4) & REPLACE WITH NAS682C3 (4) ON NS. PLUG RIVET HOLES WITH NAS1097AD3, FLUSH BOTH SIDES.

LDW280-18755-1 ASSY (REF)

DETAIL SPEC REQ		CL II ENGRG CNG		CL I ENGRG CNG	✓ LCD 5538

REASON FOR EO: INTERFERENCE WITH PWR CONN. INSTALLATION

DESCRIPTION OF EO: ON -1 ASSY "NS" WAS "FS" (2 PLACES) ON NAS680C3 (4) INSTL.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-13 (43)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	PJT				KC.	CH	PJT	
DATE	7-22-70			7/21/70	7/8/70	7-22-70	7-22-70	7-9-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY D/S - FWD END PNL PWR CONN - H2O & N FILL	LDW280-18755	A1

ISSUED BY LIAISON E V BERGEMAN X-86755 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

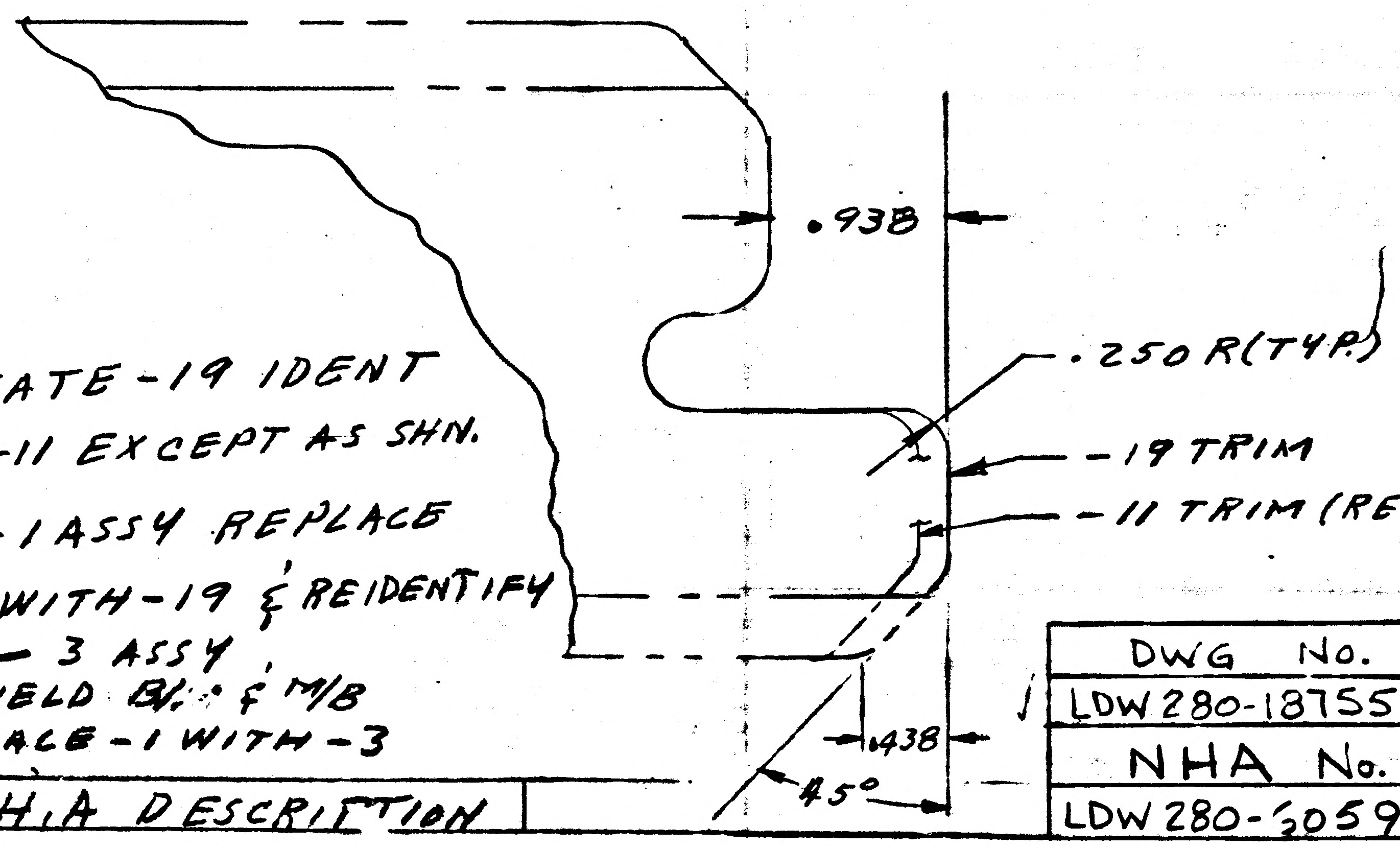
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO.	NOTED		EO NO.
CONTROL INFO NO.	LM-5-22979		



CREATE -19 IDENT
TO -11 EXCEPT AS SHN.
ON -1 ASSY REPLACE
-11 WITH -19 & REIDENTIFY
AS -3 ASSY,
IN FIELD B/M & M/B
REPLACE -1 WITH -3

DWG No.	EO No.
LDW 280-18755	A2
NHA No.	EO No.
LDW 280-30597	A4

N.H.A DESCRIPTION

ON -5 IN FIELD & B/M REPLACED LDW 280-18755-1 WITH LDW 280-18755-3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 5538

REASON FOR EO: TO PROVIDE FASTENER E.D. ON INSTL.

DESCRIPTION OF EO: ADDED -19 & -3 ASSY
REMOVED -11 & -1 ASSY

GAEC / EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-13(43)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PJF			KC	CH	PJF	
✓			-1 -11	DATE	7-22-70			7/14/70	7-15-70	7-22-70	7-15-70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY - D/S FWD END PNL - PWR CONN. - H_2O & N_2 FILL	NOTED	

ISSUED BY LIAISON C. COSMA 86755 SECTION V.D.I. GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

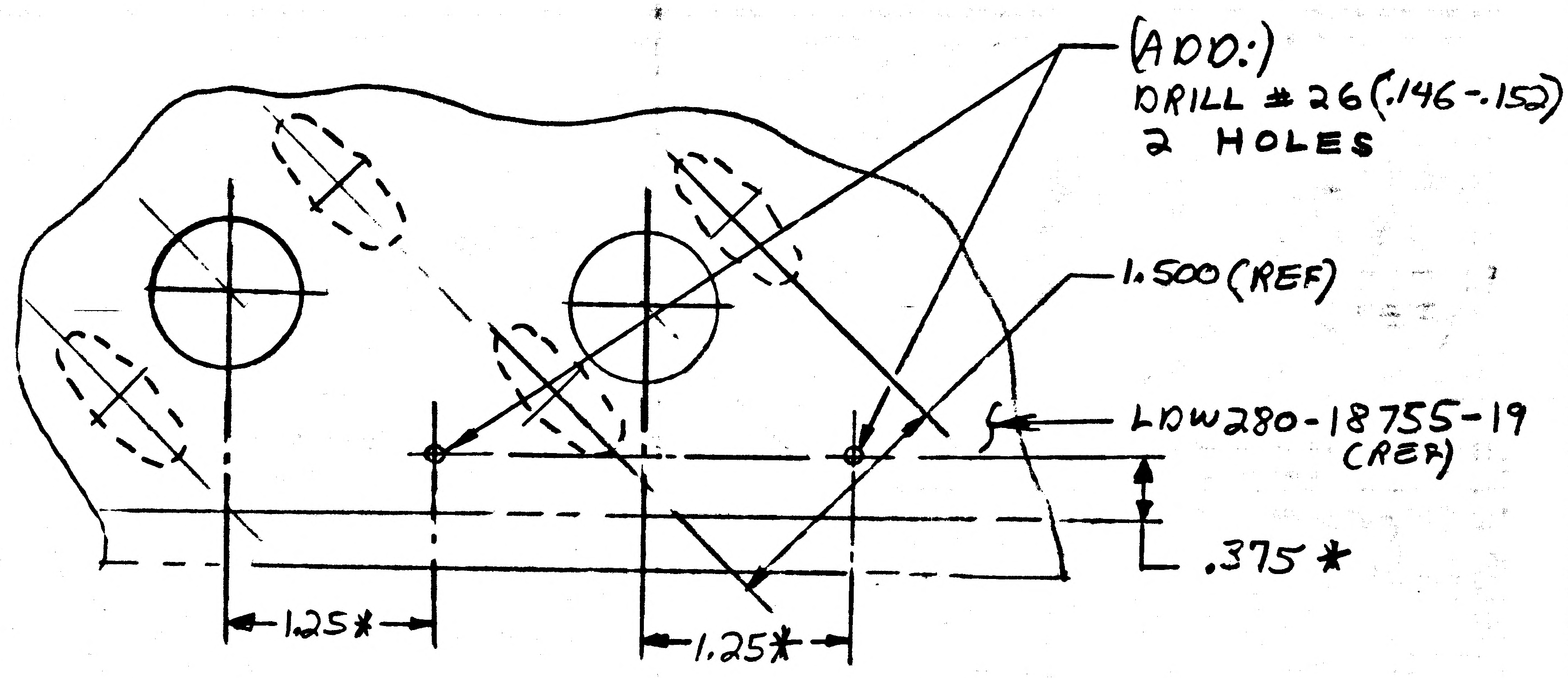
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-18755
EO NO. A3
CONTROL INFO NO. LM-5-23046

REVISE -19 AS SHOWN
REF ZONE 6E

*DIM ARE NOT TO BE INCORPORATED INTO DWG.



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 5538

REASON FOR EO: ADDITIONAL HOLES REQD / DUE TO RELOCATION OF QD'S

DESCRIPTION OF EO: ADDED DRILL #26 (.146-.152) 2 HOLES TO -19

GAEC EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	THRU
		LM-13 (43)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ☒	RECORD EO	REWORK ☒	SCRAP

APPROVED BY					KC	CR	WP	
DATE	7-30-70			7/31/70	7/24/70	7/27/70	7/31/70	7/31/70
7-23-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY D/S - FWD END PANEL PWR CONNECTOR - H_2O + N_2 FILL	LDW280-18755	A3

X56755

7-23-70 ISSUED BY LIAISON R.SCRANTON / EV BERGEMAN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18756

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60570	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60570	LM-10 (40)	1 EA

PART NO. LDW280-18756-1,-11,-12-13,-14 & -16
GAEC SCH NO.

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00								
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED A
LAST DASH NO. USED -16
GRUMMAN REL INFO
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES,
.XX ±.03, .XXX ±.010, ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994 PKG 67

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY J. BIANCHINO 4-25-70
LAYOUT BY G. BARNES 4-29-70
CHECKED BY A. D. COBB 4/29/70
GP LEADER 4/28/70
VEH DES INT 4/29/70
STRUCTURES L.E. 4/30/70
STRUCTURES 4/30/70
PROJ ENGR 4-30-70
REL GROUP 5-1-70

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, L. I., NEW YORK

CLIP ASSEMBLY
DESCENT STAGE-AFT BULKHEAD-
ECA CONNECTOR SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18756
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 5/1/70

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		NAS697C08	E	PLATE NUT	GOVT STD						
2		MS20426AD3	↑	RIVET	GOVT STD						
		LDW340-18756-16		CLIP	AL ALLOY SH	QQ-A-250/12	7075	.040 x 3 x 3	T6	88	
1		-15 ↑		↑	↑	↑	↑	.040 x 3 x 3	↑	↑	
		-14		↓				.040 x 3 x 3			
		-13		CLIP				.040 x 3 x 3			
		-12		BRACKET	↓	↓	↓	.040 x 4 x 11	↓	↓	
		-11		BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 x 4 x 11.	T6	88	
		↓	↓								
		LDW340-18756-1	E	CLIP ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AEROSPACE CORPORATION , BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18756

SCALE NONE

SHEET 2.00

ENG 77.2 7-64

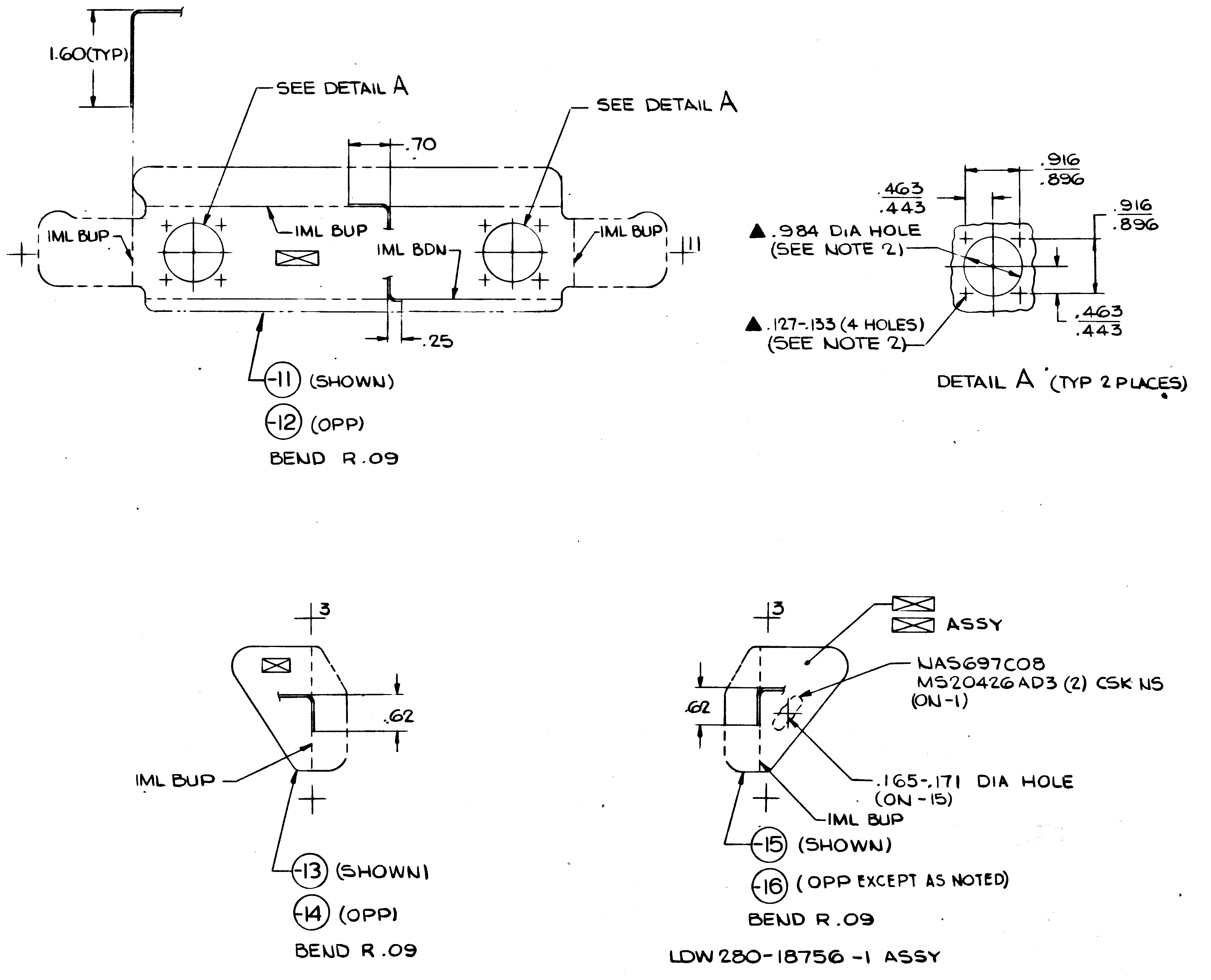
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF~~ NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH	✓
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS
2. FOR HOLES MARKED ▲ SEE LSC390-26 FOR CORRESPONDING HOLE PATTERN



1.60(TYP)
SEE DETAIL A
SEE DETAIL A
.70
IML BUP
IML BUP
IML BDN
IML BUP
.25
-11 (SHOWN)
-12 (OPP)
BEND R.09
.463
.443
.916
.896
.916
.896
▲.984 DIA HOLE
(SEE NOTE 2)
▲.127-.133 (4 HOLES)
(SEE NOTE 2)
.463
.443
DETAIL A (TYP 2 PLACES)
3
.62
IML BUP
-13 (SHOWN)
-14 (OPP)
BEND R.09
3
☒
☒ ASSY
NAS697C08
MS20426AD3 (2) CSK NS
(ON-1)
.62
CK
.165-.171 DIA HOLE
(ON-15)
IML BUP
-15 (SHOWN)
-16 (OPP EXCEPT AS NOTED)
BEND R.09
LDW 280-18756 -1 ASSY

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18756
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18756

NAS 9-1100

LDW280-18757

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11 (23)	1 EA
LM	LDW280-60540	LTA-3D R-1 (460)	1 EA
LM	LDW280-60540	LM-14 (44)	1 EA
↑	↑	LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60540	LM-10 (40)	1 EA
PART NO. LDW280-18757-13, -14, -15, -17, -19 & -20			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11 (23)	5
LM	LDW280-60540	LTA-3D R-1 (460)	5
LM	LDW280-60540	LM-14 (44)	5
↑	↑	LM-13 (43)	5
		LM-12 (42)	5
↓	↓	LM-11 (41)	5
LM	LDW280-60540	LM-10 (40)	5
PART NO. LDW280-18757-11			

WORK PACKAGE FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-20	PRIM NO.	JK (001)	
		207	ME-16-7/30/69	

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3890	

PKG 52

CONTRACT NO. NAS 9-1100		LINE ITEM 1	DOCUMENTATION TYPE
DRAWN BY	MASONE 5-14-69		GRUMMAN AIRCRAFT ENGRG CORP BETHPAGE, L. I., NEW YORK
LAYOUT BY	G BARNES		
CHECKED BY	H. HICKS 5-16-69		ANGLE DESCENT STAGE - FOWARD UPPER DECK - INTERSTAGE BEAM
GR LEADER	Thoyusen 7-9-69		
VEH DES INT	Puatieri 7/22/69		
STRUCT	EK. NM 7/26/69	PROJ ENGR 7/28/69	SIZE B · CODE IDENT NO. 26512 · LDW280-18757
STRUCT		REL GROUP Marsh 7/30/69	
~~WEIGHTS~~			SCALE NONE · SHEET 1.00 OF 3

CDR 6-18-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18757-20	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2 x 4	T6	88	
								-19	↕	↕	↕	↕	↕	.040 x 2 x 4	↕	↕	
								-17	↕	↕	↕	↕	↕	.040 x 2 x 4	↕	↕	
								-15	↕	↕	↕	↕	↕	.040 x 2 x 4	↕	↕	
								-14	↕	↕	↕	↕	↕	.040 x 2 x 6	↕	↕	
								-13	↕	↕	↕	↕	↕	.040 x 2 x 6	↕	↕	
								LDW280-18757-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040 x 2 x 4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18757

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

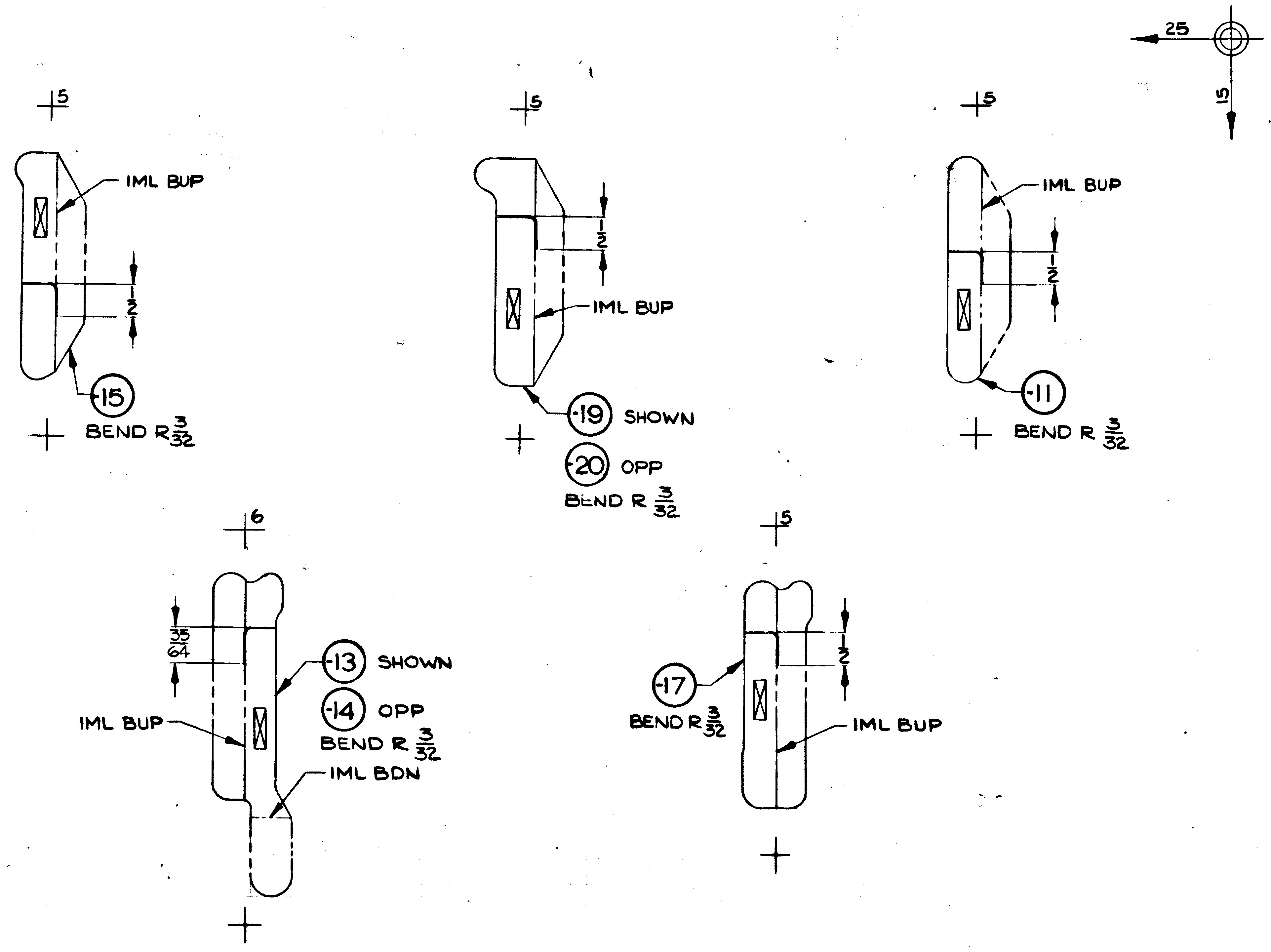
01

NAS 9-1100

LDW280-18757

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION IS ± 1/32	✓

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS.


25
15
5
IML BUP
-15
BEND R 3/32
1/2
5
1/2
IML BUP
-19 SHOWN
-20 OPP
BEND R 3/32
5
IML BUP
1/2
-11
BEND R 3/32
6
35/64
-13 SHOWN
-14 OPP
BEND R 3/32
IML BUP
IML BDN
5
1/2
-17
BEND R 3/32
IML BUP

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18757
SCALE FULL		SHEET 3.00

ENG 73.3 REV. 5-67

FOR PHOTO REPRODUCTION

2K

LDW280-18758

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11(23)	2 EA
LM	LDW280-60540	LTA-3D/R-1(460)	2 EA
↑	↑	LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
↓	↓	LM-11 (41)	2 EA
LM	LDW280-60540	LM-10(40)	2 EA
PART NO. LDW280-18758-13-15-17 & -21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11(23)	1 EA
LM	LDW280-60540	LTA-3D/R-1(460)	1 EA
↑	↑	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60540	LM-10(40)	1 EA
PART NO. LDW280-18758-11-12 & -19		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00		
REV						
SHEET						
REV						
SHEET						
REV						

LAST SECT LTR USED		GRUMMAN ~~DEL~~ INFO	
LAST DASH NO. USED	-21	PRIM NO.	VK(001)
		207	ME-16 7/30/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ± .010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD 3890
PKG 52

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 5-14-69	[redacted]
LAYOUT BY	G. BARNES 5-5-69	
CHECKED BY	H. HICKS 5-15-69	
GR LEADER	Thorgersen 7-19-69	
VEH DES INT	J. Pisateri 7/22/69	
STRUCTURES	DR. NM 7/26/69	PROJ ENGR Stadecost 7/28/69
STRUCTURES		REL GROUP G. March 7/30/69
~~WEIGHTS~~		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PLATE
DESCENT STAGE ~ FWD UPR DECK
INTERSTAGE BEAM SPLICE

SIZE	CODE IDENT NO.	
B	26512	LDW280-18758
SCALE	NONE	SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR 6-25-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18758-21	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075 T6	.050×2×5	NONE	88	
		-19	↕	PLATE	↕	↕	7075 T6	.045×3×4	NONE	↕	
		-17	↕	PLATE	↕	↕	7075 T6	.080×2×6	NONE	↕	
		-15	↕	CLIP	↕	↕	7075	.063×2×2	T6	↕	
		-13	↕	ANGLE	↕	↕	7075	.040×2×3	T6	↕	
		-12	↕	ANGLE	↕	↕	7075	.040×2×5	T6	↕	
		LDW280-18758-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.040×2×5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H 6088

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18758

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

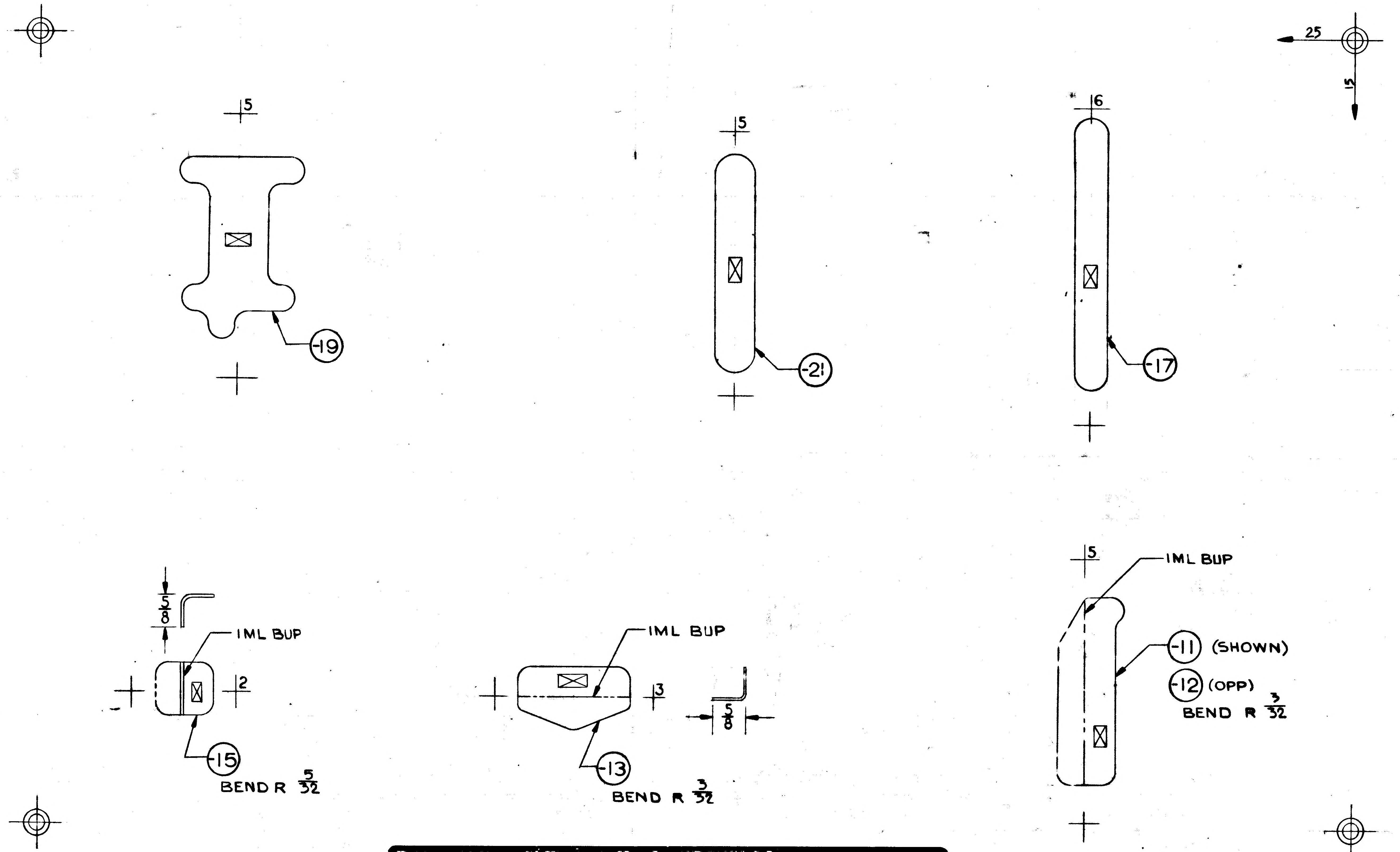
NAS 9-1100

LDW280-18758

TRAM o.k. & Quality
T.S. 5-13-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS.



25
15
5
-19
5
-21
6
-17
5/8
IML BUP
2
-15
BEND R 5/32
IML BUP
3
5/8
-13
BEND R 3/32
5
IML BUP
-11 (SHOWN)
-12 (OPP)
BEND R 3/32

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
D	26512	LDW280-18758	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

LDW280-18759

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11 (23)	1 EA
LM	LDW280-60540	LTA-3 DR-1 (460)	1 EA
↑	↑	LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60540	LM-10 (40)	1 EA
PART NO. LDW280-18759-17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60540	LTA-11 (23)	2 EA
LM	LDW280-60540	LTA-3 DR-1 (460)	2 EA
↑	↑	LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
↓	↓	LM-11 (41)	2 EA
LM	LDW280-60540	LM-10 (40)	2 EA
PART NO. LDW280-18759-11 -12 -13 -14 & -15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK (001) ME-16 7/30/69

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890

PKG 52

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 5-15-69	~~RELIABILITY~~	——
LAYOUT BY	G.BARNES 5-5-69		
CHECKED BY	SZALWINSKI 5-16-69		
GR LEADER	7-19-69		
VEH DES INT	7/22/69		
STRUCTURES	NM 7/26/69	PROJ ENGR	7/28/69
STRUCTURES		REL GROUP	G. Marsh 7/30/69
~~WEIGHT~~	——		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STIFFENER
DESCENT STAGE-FWD UPR DK-
INTERSTAGE BEAM

SIZE B

CODE IDENT NO. 26512

LDW280-18759

SCALE NONE

SHEET 1.00 OF 3

CDR 7-2-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18759-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075 T6	.045×1×22	NONE	88	
		-17	↕	PLATE	↕	↕	7075 T6	.045×2×3	NONE	↕	
		-15	↕	PLATE	↕	↕	7075 T3	.040×2×5	NONE	↕	
		-14	↕	STIFFENER	↕	↕	7075	.040×3×3	T6	↕	
		-13	↕	STIFFENER	↕	↕	7075	.040×3×3	T6	↕	
		-12	↕	STIFFENER	↕	↕	7075	.040×3×4	T6	↕	
		LDW280-18759-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.040×3×4	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18759

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

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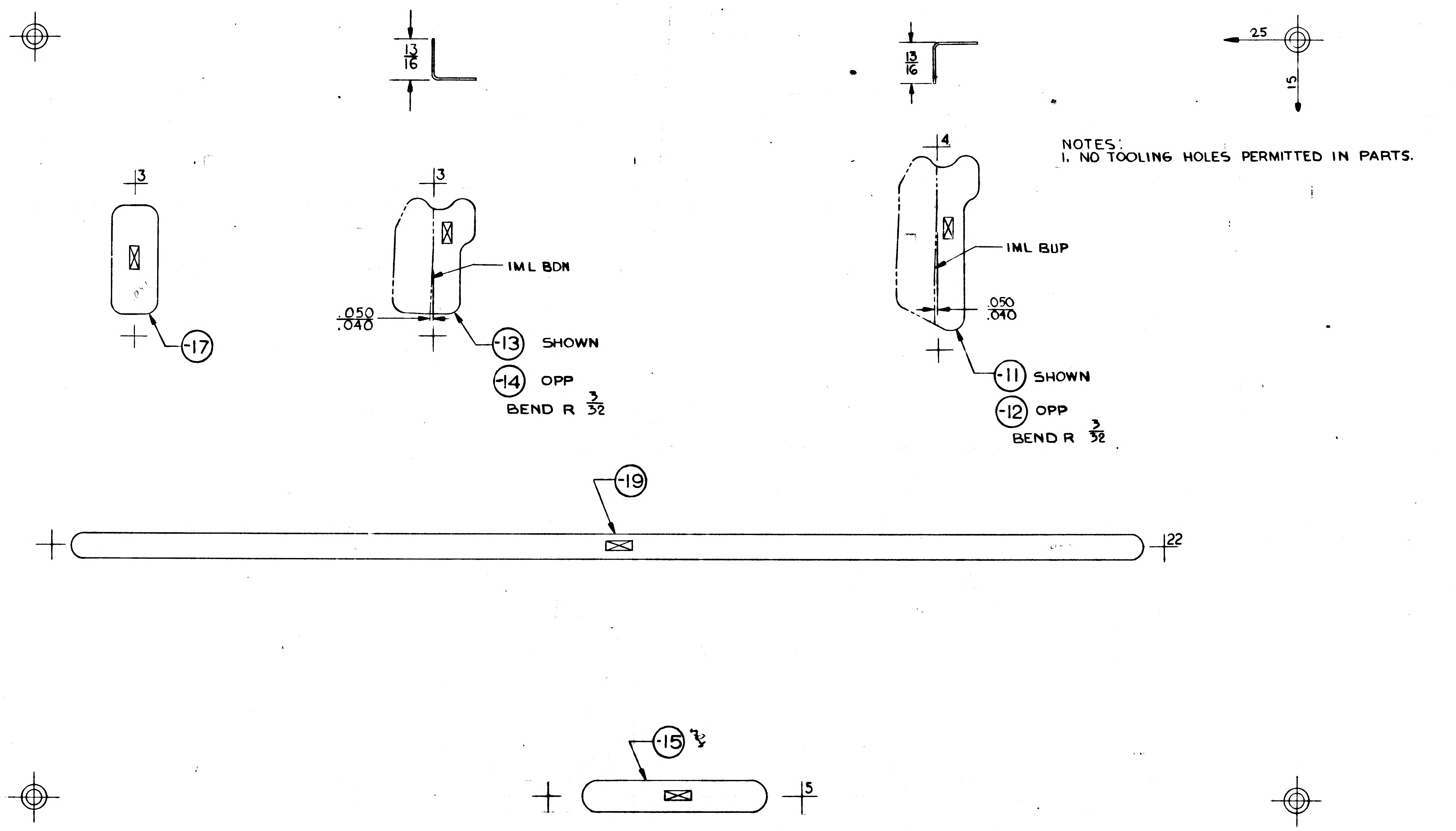
NAS 9-1100

TRAN O.K. [illegible]
T.S. 5-14-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓



13/16
13/16
25
15
3
-17
3
IML BDN
.050
.040
-13 SHOWN
-14 OPP
BEND R 3/32
4
IML BUP
.050
.040
-11 SHOWN
-12 OPP
BEND R 3/32
-19
22
-15
5

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18759
SCALE FULL		SHEET 3.00

2 FOR PHOTO REPRODUCTION 1

K2

LDW280-18760

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60544	LM-10(40)	1
	LDW280-60543	LTA-3(23	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60543	LM-10(40)	1
	LDW280-60542	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60542	LM-10(40)	1
	LDW280-60541	LTA-11(23	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		THRU	
LM	LDW280-60541	LM-10(40)	2

PART NO. LDW280-18760-12 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60544	LM-10(40)	1
	LDW280-60542	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		THRU	
LM	LDW280-60542	LM-10(40)	1

PART NO. LDW280-18760-19 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11(23)	1 EA
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60543	LM-10(40)	
	LDW280-60544	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60544	LM-10(40)	
	LDW280-60542	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60542	LM-10(40)	
	LDW280-60541	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
LM	LDW280-60541	LM-10(40)	1 EA

PART NO. LDW280-18760-11,-13,-17 — GAEC SCH NO. 50-5

FOR ADDITIONAL USAGE INFORMATION SEE SH 1.01

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01		2.00	3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -20

GRUMMAN REL INFO
PRIM NO. 207 JK(001) ME-16 9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PK54

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	H. SCHWETER 7/25/69
LAYOUT BY	G. BELEV 9-4
CHECKED BY	L. ATLAS 7-31-69
GR. LEADER	9/4/69
VEH DES INT	Thorjusen 9-4-69
STRUCTURES	9/11/69
STRUCTURES	9/11/69
PROJ ENGR	9/16/69
REL GROUP	Match 9/17/69

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ LOWER DECK
OUTBD ~ CORNER

SIZE B — CODE IDENT NO. 26512 — LDW280-18760
SCALE NONE — SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 091969

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NAS 9-1100

LDW280-18760

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1 EA
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60544	LM-10(40)	
	LDW280-60542	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60542	LM-10(40)	
	LDW280-60541	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
LM	LDW280-60541	LM-10(40)	1 EA

PART NO. LDW280-18760-16 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1 EA
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60544	LM-10(40)	
	LDW280-60543	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
	LDW280-60543	LM-10(40)	
	LDW280-60542	LTA-11(23)	
		LTA-3DR/1(460)	
		LM-14(44)	
		THRU	
LM	LDW280-60542	LM-10(40)	1 EA

PART NO. LDW280-18760-14, -15, -18 & -20 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET
REV
SHEET
REV
SHEET
REV

LAST SECT LTR USED
LAST DASH NO. USED
GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

~~DOCUMENTATION TYPE~~

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18760
SCALE NONE
SHEET 1-01 OF

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18760-20	E	ANGLE	AL.ALY SH	QQ-A-250/12	7075	.063 X 2 X 9	T6	88	
		-19						.063 X 2 X 9			
		-18						.063 X 2 X 16			
		-17						.063 X 2 X 16			
		-16						.071 X 2 X 9			
		-15						.071 X 2 X 9			
		-14						.071 X 2 X 10			
		-13						.071 X 2 X 10			
		-12						.071 X 2 X 9			
		LDW280-18760-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 2 X 9	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18760

SCALE NONE SHEET 2.00

ENG 77.2 7-65

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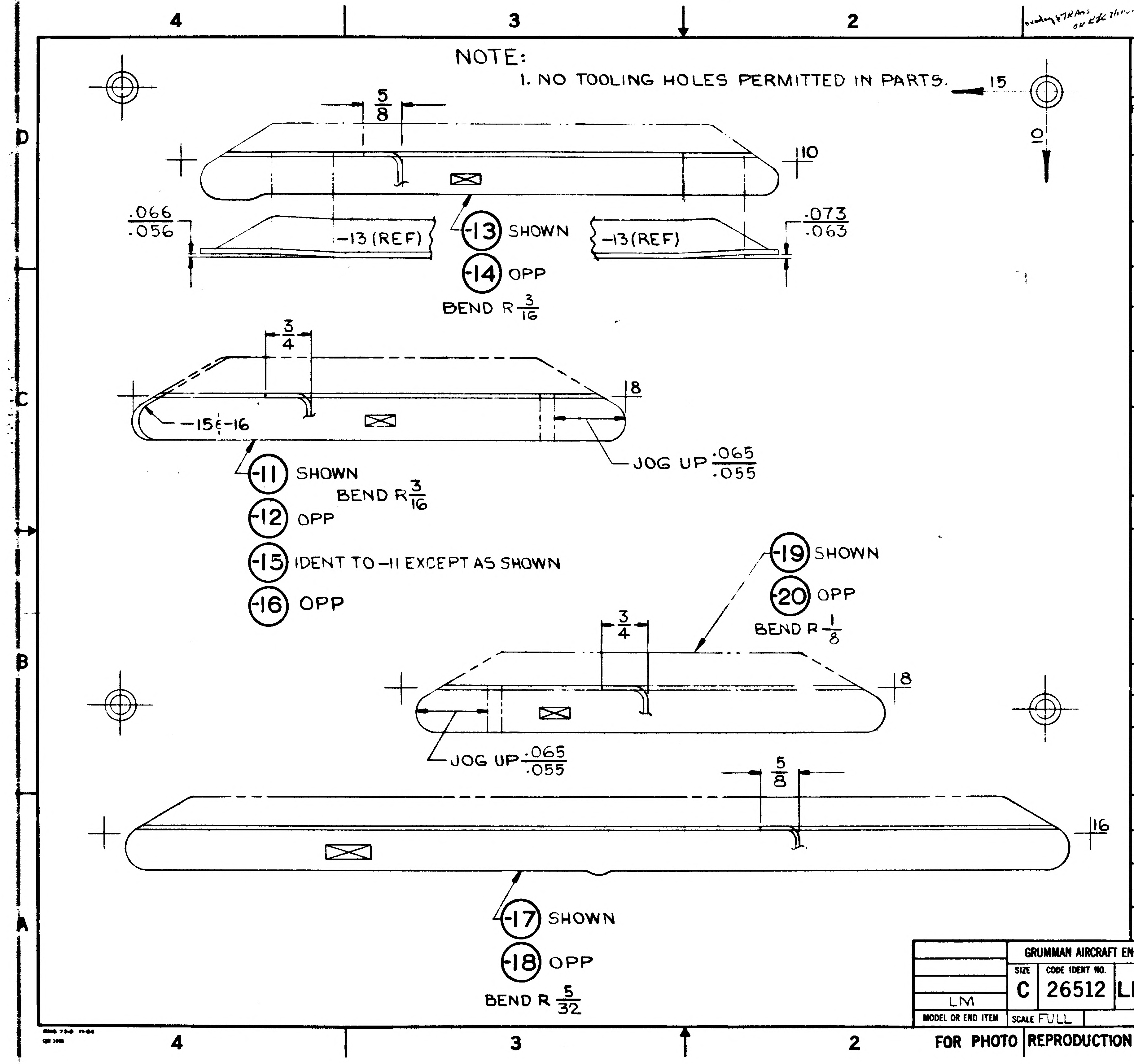
NAS 9-1100

NOTE:

1. NO TOOLING HOLES PERMITTED IN PARTS.


4
3
2
1
D
C
B
A
5/8
10
.066
.056
-13 (REF)
-13 SHOWN
-14 OPP
BEND R 3/16
.073
.063
15
10
3/4
8
-15 & -16
-11 SHOWN
BEND R 3/16
-12 OPP
-15 IDENT TO -11 EXCEPT AS SHOWN
-16 OPP
JOG UP .065/.055
-19 SHOWN
-20 OPP
BEND R 1/8
3/4
8
JOG UP .065/.055
5/8
16
-17 SHOWN
-18 OPP
BEND R 5/32

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGI[illegible]ARKED ☒ ~~USE R[illegible]ES IF NECESSARY.~~	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	√

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-18760
	SCALE FULL		SHEET 3-00

LDW280-18760

LDW280-18760

FOR PHOTO REPRODUCTION

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18760
EO NO. A1
CONTROL INFO NO. LDW280B8-08

IN MOD. BLK., B/M, & F/D REMOVE -16, & -13
N/A LDW280-60542.
IN MOD. BLK., B/M, & F/D REMOVE -15, & -14
N/A LDW280-60543.
LM-10(40) THRU LM-14(44), LTA-11(23),
& LTA-3DR/1 (460) EFFECTIVITY.

DETAIL SPEC REQ		CL . ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PKG 54 (5)

REASON FOR EO
REMOVED REQUIREMENTS FROM MOD. EQUIP. STOW.

DESCRIPTION OF EO
REMOVED -16 & -13, N/A LDW280-60542.
REMOVED -15 & -14, N/A LDW280-60543.

GAEC EO RELEASE
SdB 11-18-69
JK 11/18/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
LM		LM-14 (44), LTA-11 (23),	
LM		LTA-3DR/1	(460)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY				SWH	WPB			
DATE	11/14			11/13/69	11/17/69		11/17/69	11/18/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE DESCENT STAGE ~ LOWER DECK	LDW280-18760	A1

CDR 12/04/69
ISSUED BY W. LEIFER / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED△.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1 EA)	LDW200-55518	SEE DWG	A7
	-19 (1)	-55525		
-18760	-11, -12, -13, -16 & -17 (1 EA)	-55518		A2
	-11, -12, -14, -15, -17, -18, -19 & -20 (1 EA)	-55519		
	-11, -12, -13, -17, -18 & -20 (1 EA)	-55524		
	-11, -12, -13, -14, -15 -16 -17, -18, -19 & -20 (1 EA)	-55525		
-18764	-11 & -13 (1 EA)	-55525		A3
-18761	-12, -13, -14, -15, -16, -17, -18 & -19 (1 EA)	-55518		A2
	-11, -12, -13, -14, -17 & -18 (1 EA) & -15 (2)	-55519		
	-11, -14, -15, -16, -17 & -18 (1 EA)	-55524		
	-11, -12, -14, -17 & -18 (1 EA), & -15 (2)	-55525		
-18762	-11, -13, & -14 (1 EA)	-55518		A3
	-12, -13 & -14 (1 EA)	-55519		
	-13 (1)	-55524		
	-11, -12 & -13 (1 EA)	-55525		
-18766	-11 (1) & -13 (2)	-55518		A1
		-55519		
		-55524		
	-11 (1) & -13 (2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1 EA)	-55519		
	-15 & -17 (1 EA)	-55525		
	-15 (1)	LDW200 -55524		

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, N/A △

GAEC EO RELEASE: VK

MODEL	EFFECTIVITY E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PST
✓		NOT REQ'D		DATE	11-18-6
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		11/18			11/18/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11 (23)	1
		LTA-3P/R1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60544	LM-10 (40)	1
	LDW280-60542	LTA-11 (23)	1
		LTA-3P/R1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60542	LM-10 (40)	1
	LDW280-60541	LTA-11 (23)	1
		LTA-3P/R1 (460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60541	LM-10 (40)	1
PART NO. LDW280-18761-12		GAEC SCH NO.	

LDW280-18761

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11 (23)	1 EA
		LTA-3P/R1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60544	LM-10 (40)	1 EA
PART NO. LDW280-18761-11, -14, -17 & -18		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11 (23)	1 EA
		LTA-3P/R1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
	LDW280-60543	LM-10 (40)	1 EA
	LDW280-60542	LTA-11 (23)	1 EA
		LTA-3P/R1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
	LDW280-60542	LM-10 (40)	1 EA
	LDW280-60541	LTA-11 (23)	1 EA
		LTA-3P/R1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60541	LM-10 (40)	1 EA
PART NO. LDW280-18761-11, -14, -17 & -18		GAEC SCH NO. 50-5	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.02
RFV			
SHEET	2.00		
REV			
SHEET	3.00		
REV			

LAST SECT LTR USED	—
LAST DASH NO. USED	-19

GRUMMAN REL INFO
PRIM NO. 207
JK001 ME-16-9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PK 54

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (5)

DRAWN BY	J. BIANCHINO
LAYOUT BY	G. BELEV 8-7-0
CHECKED BY	D. FASS 7-25-69
GP LEADER	9-9-69
VEH DES INT	Thorgensen 9-10-69
STRUCTURE	9/15/69
STRUCTURE	9/15/69
PROJ ENGR	
REL GROUP	9/17/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE LOWER DECK
INBD PANEL STIFFENER

SIZE	CODE IDENT NO.	
B	26512	LDW280-18761
SCALE	NONE	SHEET 1.00 OF 5

ENG 77.1 12-65

CDR 091969

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NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11 (23)	1
		LTA-3P/R1(460)	1
		LM-14(44)	1
		LM-13 43)	1
		LM-12(42)	1
		LM-11 (41)	1
	LDW280-60543	LM-10(40)	1
	LDW280-60542	LTA-11 (23)	2
		LTA-3P/R1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60542	LM-10(40)	2
	LDW280-60541	LTA-11 (23)	1
		LTA-3P/R1(460)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60541	LM-10(40)	1

PART NO. LDW280-18761-15
CONT. ON SH 1.02

LDW28C-18761

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11 (23)	1
		LTA-3P/R1(460)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
	LDW280-60543	LM-10(40)	1
	LDW280-60541	LTA-11(23)	1
		LTA-3P/R1(460)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60541	LM-10(40)	1

PART NO.
LDW280-18761-16

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11(23)	1
		LTA-3P/R1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60541	LM-10(40)	1

LDW280-18761-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LTA-11 (23)	1
		LTA-3P/R1(460)	1
		LM-14 (44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
	LDW280-60542	LM-10(40)	1
	LDW280-60541	LTA-11(23)	1
		LTA-3P/R1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
LM	LDW280-60541	LM-10 (40)	1

PART NO.
LDW280-18761-13

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH
SHEET
REV
SHEET
REV
SHEET
REV
LAST SECT LTR USED
LAST DASH NO. USED
GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18761
SCALE NONE
SHEET 1.01

ENG 77.1 12-65

01

NAS 9-1100

LDW280-18761

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11 (23)	2
		LTA-3D/R1 (460)	2
		LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60544	LM-10 (40)	2

PART NO. LDW280-18761-15
CONT. FROM SH 1.01

GAEC SCH NO.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET								
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED
LAST DASH NO. USED
GRUMMAN REL INFO
PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE
DRAWN BY
LAYOUT BY
CHECKED BY
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18761
SCALE NONE
SHEET 1.02 OF

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18761-19	E	ANGLE	AL ALLOY SH	QQ-A-250 12	7075	.063 x 2 x 10	T6	88	
		-18						.071 x 2 x 9			
		-17						.071 x 2 x 9			
		-16						.063 x 2 x 10			
		-15						.063 x 2 x 10			
		-14						.040 x 2 x 13			
		-13						.040 x 2 x 13			
		-12						.063 x 2 x 10			
		LDW280-18761-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.063 x 2 x 10	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18761
SCALE NONE
SHEET 2.0

ENG 77.2 7-65

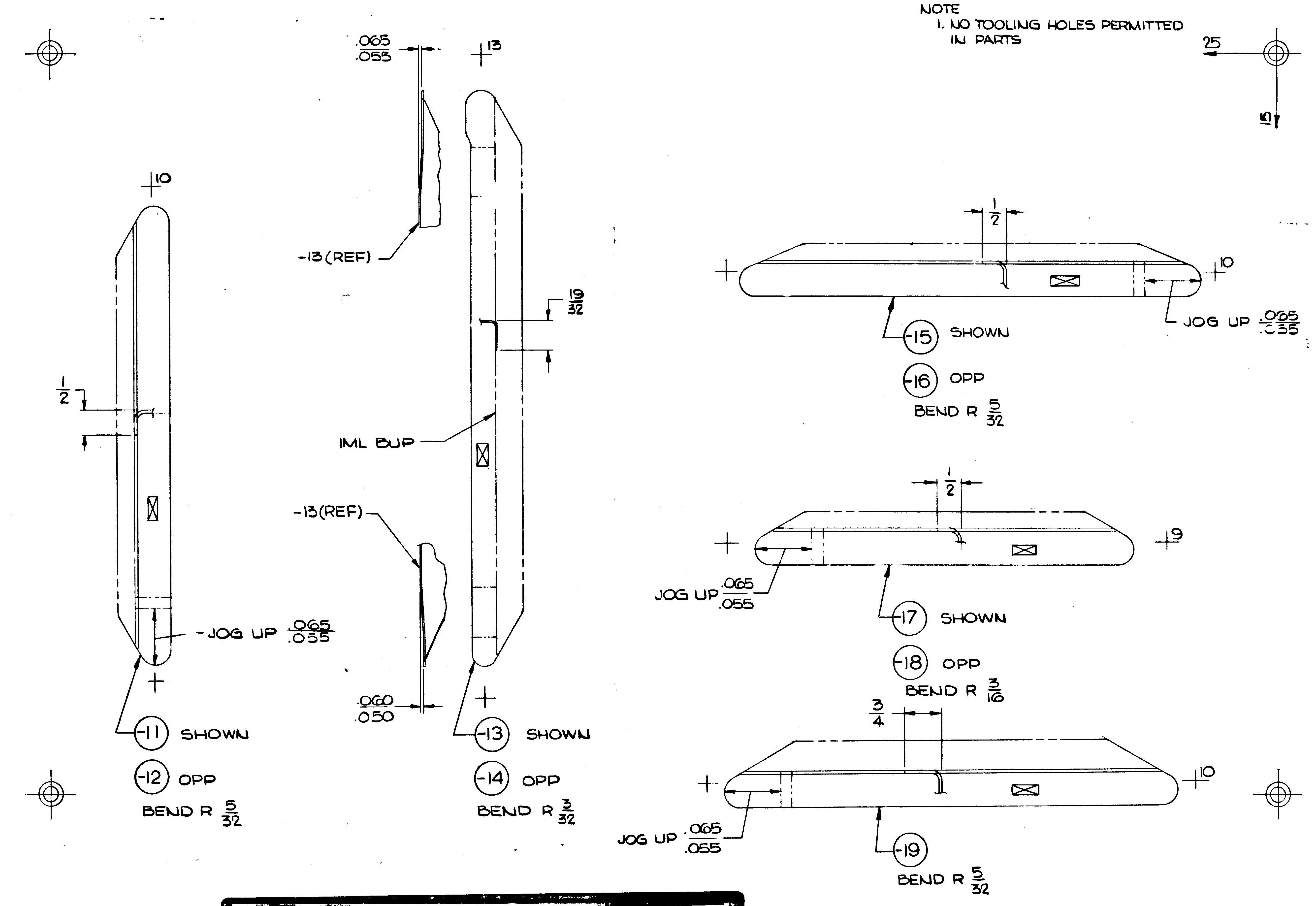
01

NAS 9-1100

TRAN O.K.
T.S. 7-19-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



25
15
10
.065
.055
13
-13 (REF)
19/32
1/2
IML BLP
-13(REF)
-JOG UP .065/.055
.060
.050
-11 SHOWN
-12 OPP
BEND R 5/32
-13 SHOWN
-14 OPP
BEND R 3/32
1/2
10
JOG UP .065/.055
-15 SHOWN
-16 OPP
BEND R 5/32
1/2
9
JOG UP .065/.055
-17 SHOWN
-18 OPP
BEND R 3/16
3/4
10
JOG UP .065/.055
-19
BEND R 5/32

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18761

SCALE FULL — SHEET 3.00

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1758
CONTROL INFO NO. LDW280B8505

FOR THE FOLLOWING DWGS.* & THEIR DASH NO.'S,* LISTED BELOW, REMOVE LM-10(40) THRU. LM-14(44), LTA-11(23), & LTA-3DR/1 (460) EFFECTIVITY. N/A LDW280-60541.

DWG *	DASH No.*	CHG No	TITLE
LDW280M17807	-11	B3	SEE DWG
LDW280-18761	-11	A1	↕
LDW280M17501	-1	A6	SEE DWG

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD ~~3994~~ PKG 57	(5)

REASON FOR EO: LOWER DECK RECONFIGURATION

DESCRIPTION OF EO: FOR * REMOVED LM-10 THRU LM-14, LTA-11 (23), & LTA-3DR/1 EFFECTIVITY.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
LM		LM-14(44), LTA-11(23),	
LM		LTA-3DR/1(460).	

CDR 12-04-69

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT REQ SCRAP ✓

APPROVED BY				WPB			
DATE	11/14			11/13/69	11/17/69		11/17/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

GAEC EO RELEASE: SaB 1479; 11/19/69; 11/19/69

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO280
EO NO.: 1758

ISSUED BY W. LEIFER/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1EA)	LDW200-55518	SEE DWG	A7
	-19(1)	-55525		
-18760	-11,-12,-13,-16 & -17 (1EA)	-55518		A2
	-11,-12,-14,-15,-17,-18, -19 & -20 (1EA)	-55519		
	-11,-12,-13,-17, -18 & -20 (1EA)	-55524		
	-11,-12,-13,-14,-15,-16 -17,-18,-19 & -20 (1EA)	-55525		
-18764	-11 & -13 (1EA)	-55525		A3
-18761	-12,-13,-14,-15,-16, -17,-18 & -19 (1EA)	-55518		A2
	-11,-12,-13,-14,-17 & -18 (1EA) & -15 (2)	-55519		
	-11,-14,-15,-16, -17 & -18 (1EA)	-55524		
	-11,-12,-14,-17 & -18 (1EA), & -15 (2)	-55525		
-18762	-11, -13, & -14 (1EA)	-55518		A3
	-12,-13 & -14 (1EA)	-55519		
	-13 (1)	-55524		
	-11,-12 & -13 (1EA)	-55525		
-18766	-11 (1) & -13 (2)	-55518		A1
		-55519		
		-55524		
	-11 (1) & -13 (2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1EA)	-55519		
	-15 & -17 (1EA)	-55525		
	-15 (1)	LDW200 -55524		

01

NAS 9-1100

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 95	(5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, N/A △

GAEC EO RELEASE: VK 11/19/69

MODEL	E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY: PGT | DATE: 11-18-69 | VDI

SUPPORT | RELIAB. GROUP | GROUP LEADER 11/18 | STRESS GROUP MH | LIAISON ENGRG | PROJ ENGRG 11/18/69 | ~~SBVT~~

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO280 | EO NO. 1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18762

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11 (23)	1
		LTA-3^{DR}/(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60544	LM-10(40)	1
	LDW280-60543	LTA-11 (23)	1
		LTA-3^{DR}/(460)	1
		LM-14(44)	1
		THRU	
	LDW280-60543	LM-10(40)	1
	LDW280-60542	LTA-11 (23)	1
		LTA-3^{DR}/(460)	1
		LM-14(44)	1
		THRU	
LM	LDW280-60542	LM-10(40)	1

PART NO. LDW280-18762-12

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11 (23)	1 EA
		LTA-3^{DR}/(460)	1 EA
		LM-14(44)	1 EA
		THRU	
LM	LDW280-60541	LM-10(40)	1 EA

PART NO. LDW280-18762-15, -17, -19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LTA-11 (23)	1
		LTA-3^{DR}/(460)	1
		LM-14(44)	1
		THRU	
LM	LDW280-60542	LM-10(40)	1

PART NO. LDW280-18762-14

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11 (23)	1 EA
		LTA-3^{DR}/(460)	1 EA
		LM-14(44)	1 EA
		THRU	
	LDW280-60544	LM-10(40)	1 EA
	LDW280-60543	LTA-11 (23)	1 EA
		LTA-3^{DR}/(460)	1 EA
		LM-14(44)	1 EA
		THRU	
	LDW280-60543	LM-10(40)	1 EA
	LDW280-60542	LTA-11 (23)	1 EA
		LTA-3^{DR}/(460)	1 EA
		LM-14(44)	1 EA
		THRU	
	LDW280-60542	LM-10(40)	1 EA
	LDW280-60541	LTA-11 (23)	1 EA
		LTA-3^{DR}/(460)	1 EA
		LM-14(44)	1 EA
		THRU	
LM	LDW280-60541	LM-10(40)	1 EA

PART NO. LDW280-18762-11, -13 — GAEC SCH NO. 50-5

WORK PKG FUNCTION 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	
LAST DASH NO. USED	-19

GRUMMAN REL INFO

PRIM NO.	JK(001)
207	ME-16 9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±.020 ±1/32 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3890 PK 54

CONTRACT NO. NAS-9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J. VICINANZA 7/24/69	
LAYOUT BY	G. BELEV	
CHECKED BY	D. FASS 8-1-69	
GR. LEADER	W. Ham 9-9-69	
VEH DES INT	Thorgersen 9-10-69	
STRUCT	WPS 9/15/69	PROJ ENGR
STRUCT	WJH 9/15/69	REL GROUP J. Marsh 9/17/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE~LOWER DECK
INBD & OUTBD CORNER STIF

SIZE	CODE IDENT NO.	
B	26512	LDW280-18762
SCALE	NONE	SHEET 1.00 OF 3

7.1 12-65

CDR 091969

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18762-19	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075-T6	.028x2x4	NONE	88	
		-17	↕	↕	↕	↕	7075-T6	.080x2x4	NONE	88	
		-15					7075	.063x3x12	T6	88	
		-14					↕	.050x14x17	T6	88	
		-13						.050x14x17	T6	88	
		-12						.063x12x21	T6	88	
		LDW280-18762-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.063x12x21	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H 6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18762

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

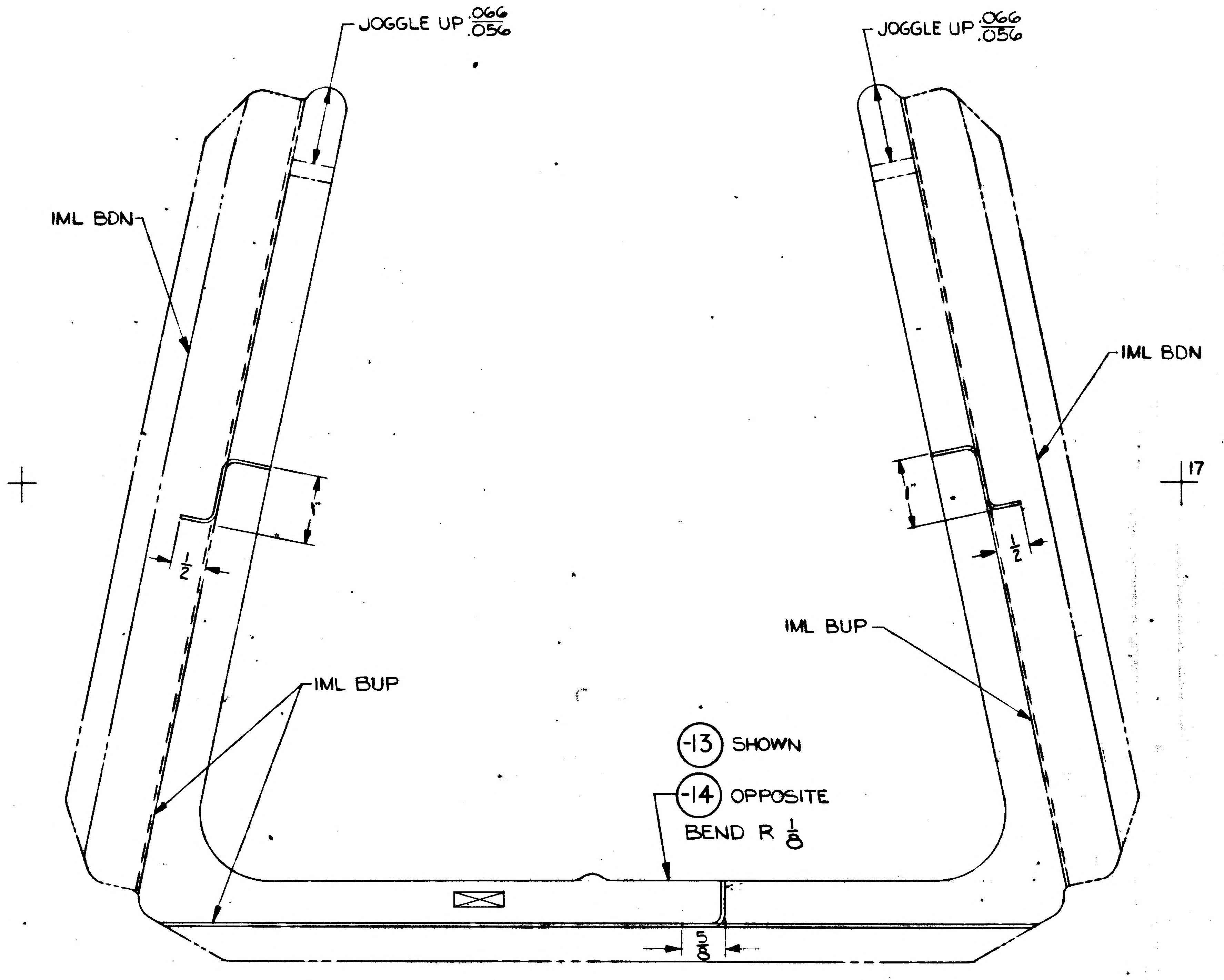
01

NAS 9-1100

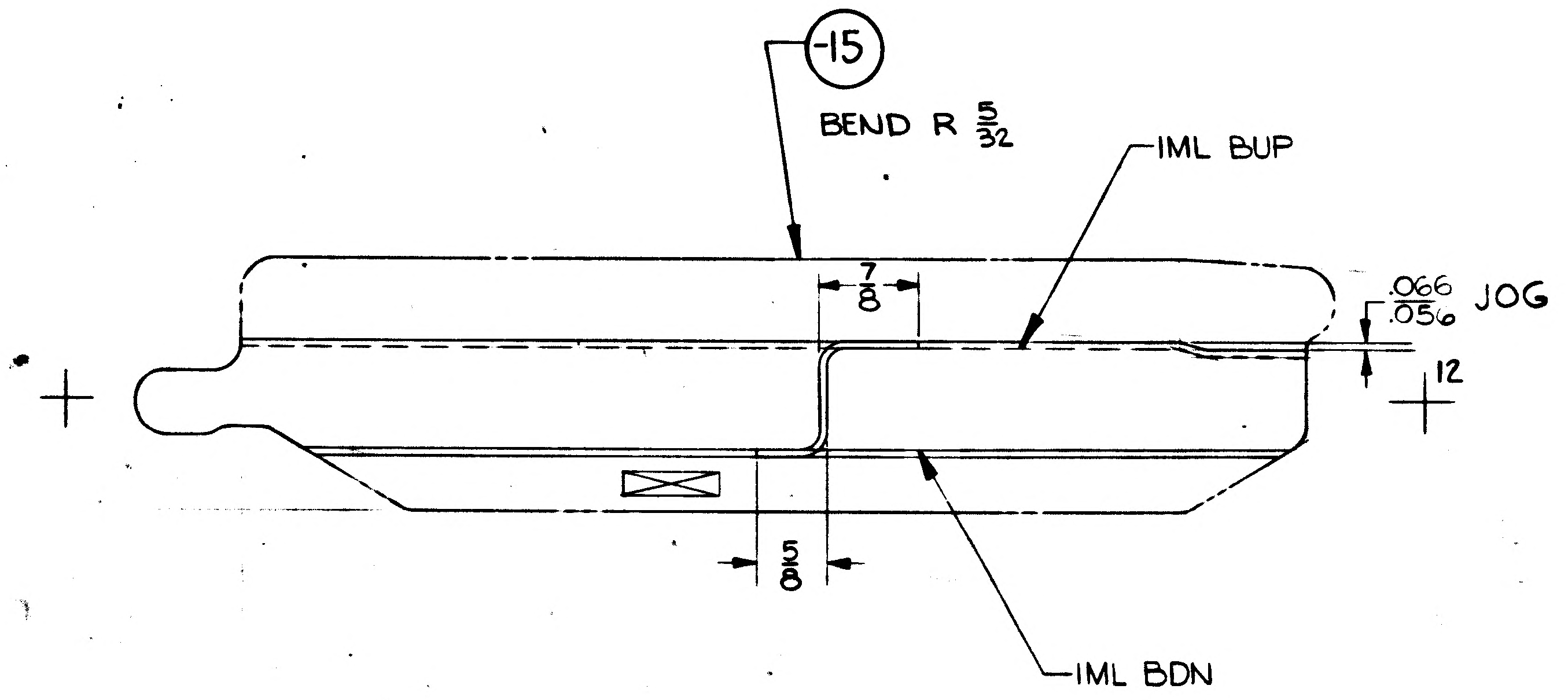
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

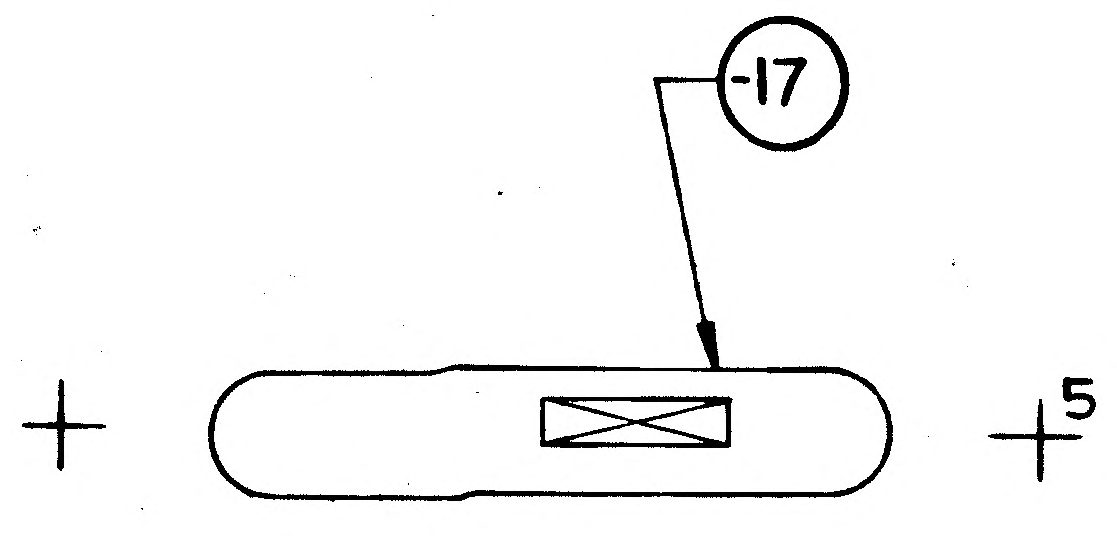
NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.

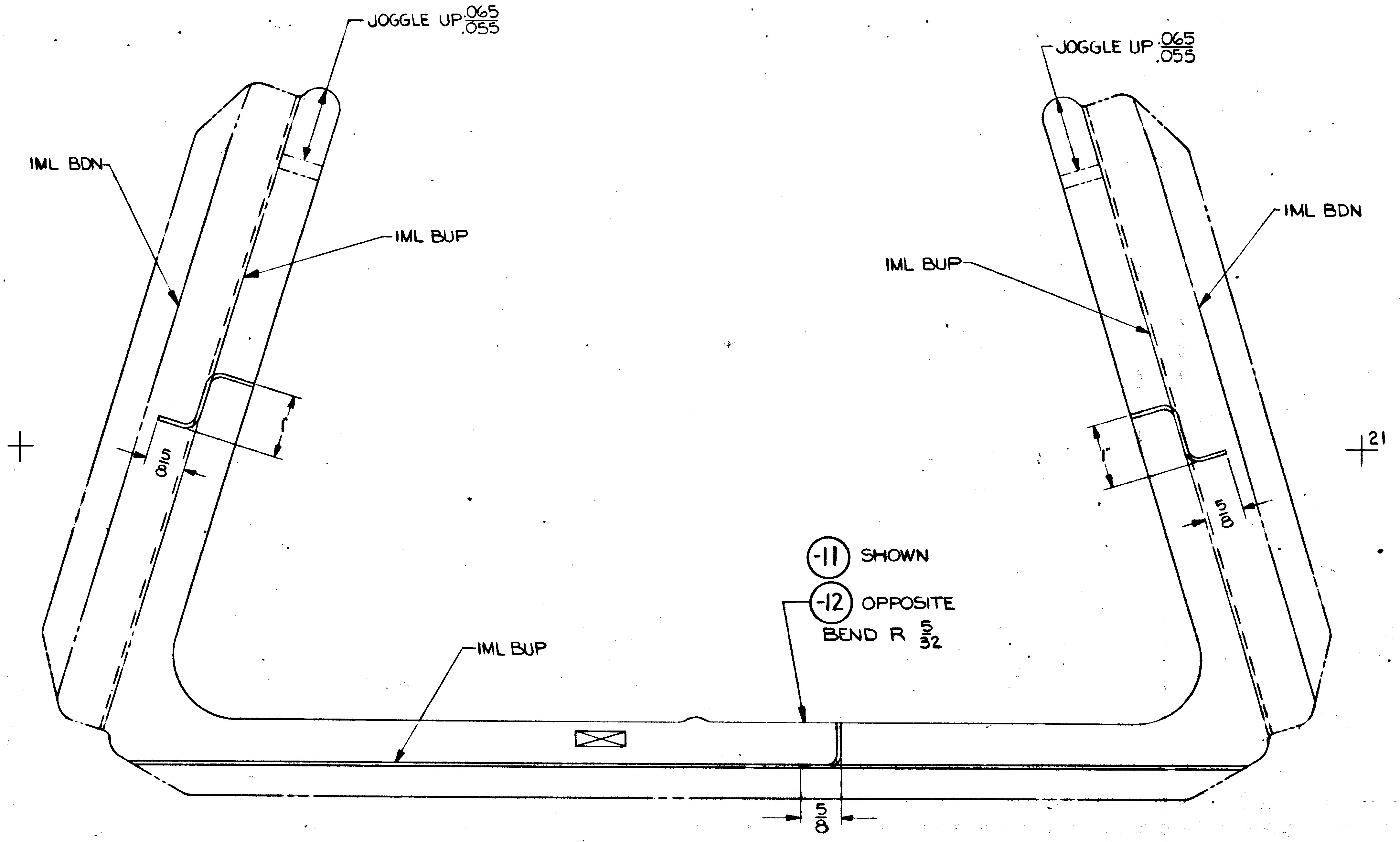


JOGGLE UP .066/.056
JOGGLE UP .066/.056
IML BDN
IML BDN
1/2
1/2
1
1
IML BUP
IML BUP
-13 SHOWN
-14 OPPOSITE
BEND R 1/8
5/8
17

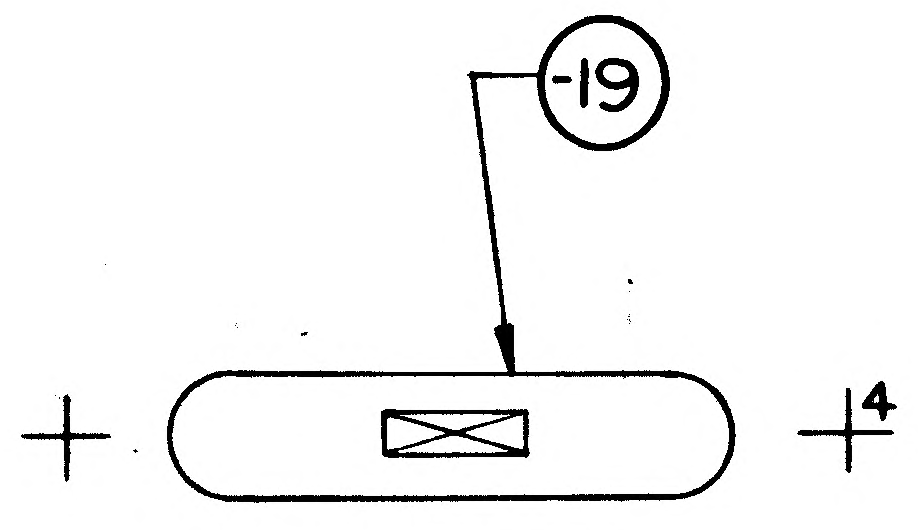


-15
BEND R 5/32
IML BUP
7/8
.066/.056 JOG
12
5/8
IML BDN
40
25





JOGGLE UP .065/.055
JOGGLE UP .065/.055
IML BDN
IML BUP
IML BUP
IML BDN
5/8
5/8
-11 SHOWN
-12 OPPOSITE
BEND R 5/32
IML BUP
5/8
21



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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18762
SCALE FULL		SHEET 3.00

K2

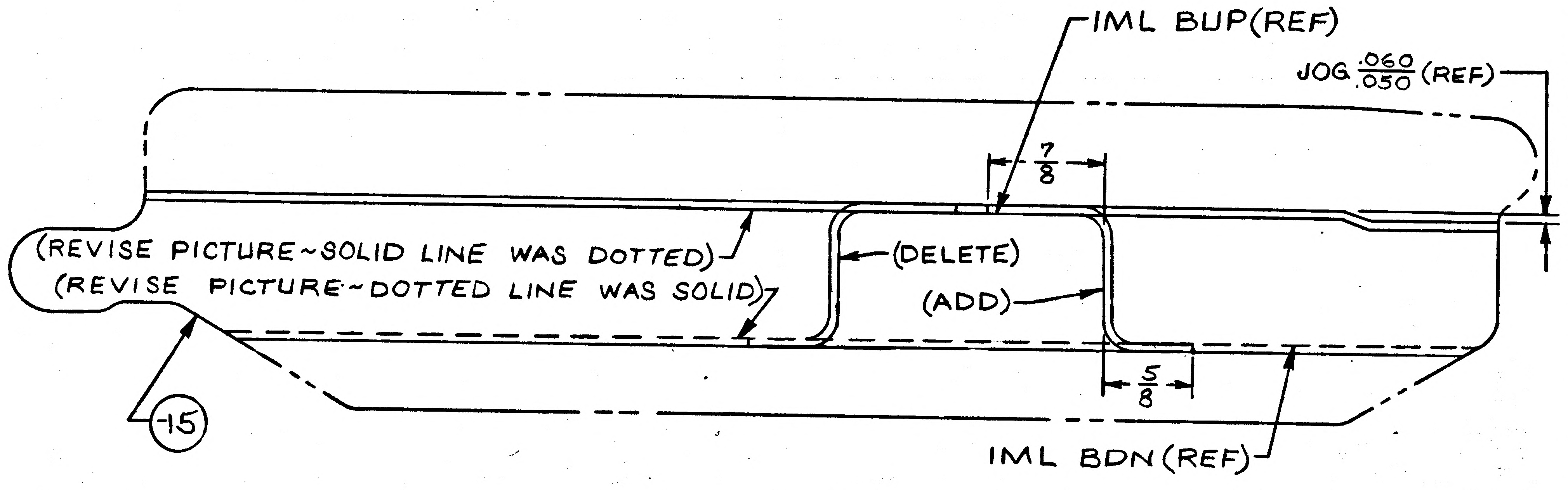
FOR PHOTO 1 REPRODUCTION

LDW280-18762

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18762	EO NO.	A1
CONTROL INFO NO.	LM-2-5639		



IML BUP(REF)
JOG .060/.050 (REF)
7/8
(REVISE PICTURE~SOLID LINE WAS DOTTED)
(REVISE PICTURE~DOTTED LINE WAS SOLID)
(DELETE)
(ADD)
-15
5/8
IML BDN(REF)

LOFTED DWG

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890

REASON FOR EO: DRAWING CORRECTION ONLY (PICTORIAL REPRESENTATION OF FLANGE DIRECTION DISAGREES WITH FLANGE BEND DIRECTION CALLOUT)

DESCRIPTION OF EO: FOR -15 REVISE PICTURE OF IML (2 PLC'S) HIDDEN LINE WAS SOLID; SOLID LINE WAS HIDDEN.

GAEC EO RELEASE: R (2) 10/25

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU LM-14 (44)	
		LTA-3 DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: NOT REWORK / REQD SCRAP

APPROVED BY	F.BK				KC				
DATE	10/24/69			RC 10-24-69	10/20/69	10/20/69	10/24/69	10/22/69
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE~D/S~LOWER DECK~INBOARD & OUTBOARD CORNER STIFFENER	LDW280-18762	A1

ISSUED BY LIAISON J. MALONEY 10/20/69 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18762
EO NO. A2
CONTROL INFO NO. LDW280B9168

IN MOD. BLK., FOR -14, ADD NEXT ASSEMBLY LDW280-60541. (1 PER VEHICLE)

EFFECTIVE ON LM-10(40) THRU LM-14(44), LTA-11(23), LTA-3DR/1 (460).

IN MOD. BLK., B/M, and F/D REMOVE -11, -12, -15, -17, & -19 FROM THE N/A'S LISTED BELOW.

DASH NO.	N/A *
-15, -17, & -19	LDW280-60541
-12	LDW280-60543
-11	LDW280-60543 & LDW280-60542

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PK. 57 (5)

REASON FOR EO: REMOVED REQUIREMENTS FOR MESA SUPT. FTG.

DESCRIPTION OF EO: FOR -14, ADDED N/A LDW280-60541. REMOVED -11, -12, -15, -17, & -19 FROM N/A'S *.

GAEC EO RELEASE (E): 11-17-69; JK 11/17/69

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	THRU
LM		LM-14 (44),	LTA-11 (23),
LM		LTA-3DR/	1 (460).

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	11/14			11/13/69	11/17/69		11/14/69	11/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: ZEE D/S~ LOWER DK, CORNER, INBD & OUTBD STIF
DRAWING NO.: LDW280-18762
EO NO.: A2

CDR 12/04/69
ISSUED BY W. LEIFER/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1EA)	LDW200-55518	SEE DWG	A7
	-19(1)	-55525		
-18760	-11,-12,-13,-16 & -17(1EA)	-55518		A2
	-11,-12,-14,-15,-17,-18, -19 & -20 (1EA)	-55519		
	-11,-12,-13,-17, -18 & -20 (1EA)	-55524		
	-11,-12,-13,-14,-15,-16 -17,-18,-19 & -20(1EA)	-55525		
-18764	-11 & -13 (1EA)	-55525		A3
-18761	-12,-13,-14,-15,-16, -17,-18 & -19(1EA)	-55518		A2
	-11,-12,-13,-14,-17 & -18(1EA) & -15(2)	-55519		
	-11,-14,-15,-16, -17 & -18 (1EA)	-55524		
	-11,-12,-14,-17 & -18(1EA), & -15(2)	-55525		
-18762	-11, -13, & -14 (1EA)	-55518		A3
	-12,-13 & -14 (1EA)	-55519		
	-13(1)	-55524		
	-11,-12 & -13 (1EA)	-55525		
-18766	-11(1) & -13(2)	-55518		A1
		-55519		
		-55524		
	-11(1) & -13(2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1EA)	-55519		
	-15 & -17 (1EA)	-55525		
	-15(1)	LDW200 -55524		

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 95 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF LOWER DECKS FOR EXTENDED TANKS	FOR *, ADDED LTA-5/R EFF, N/A △	VK 11/21/69

MODEL	EFFECTIVITY E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	11-18-69			11/18			11/18/69	11/19/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO280
EO NO. 1759

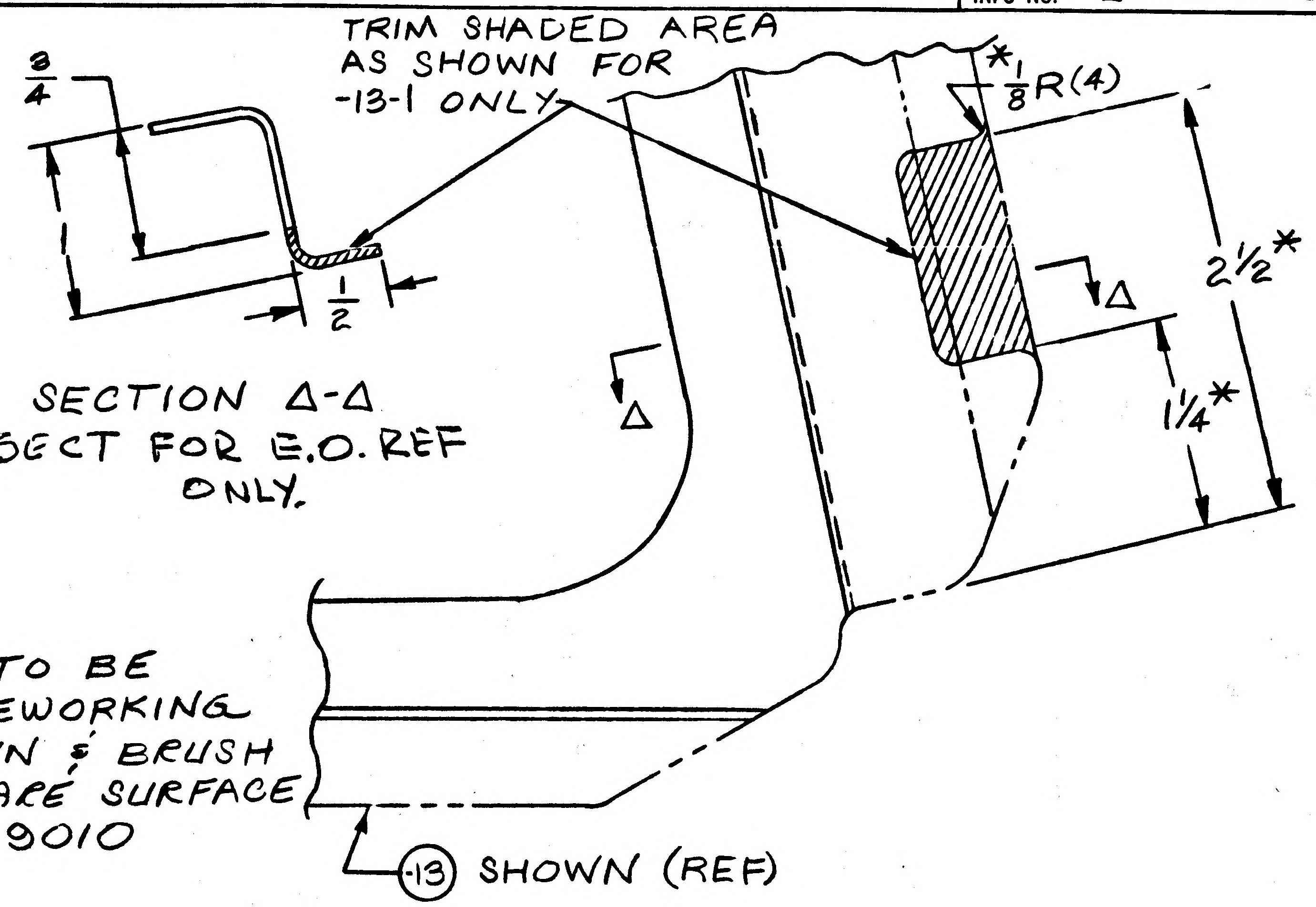
CDR 12-5-69
ISSUED BY HERB DONNER X86346 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-18762	EO NO.	A4
CONTROL INFO NO.	LM-2-5987		

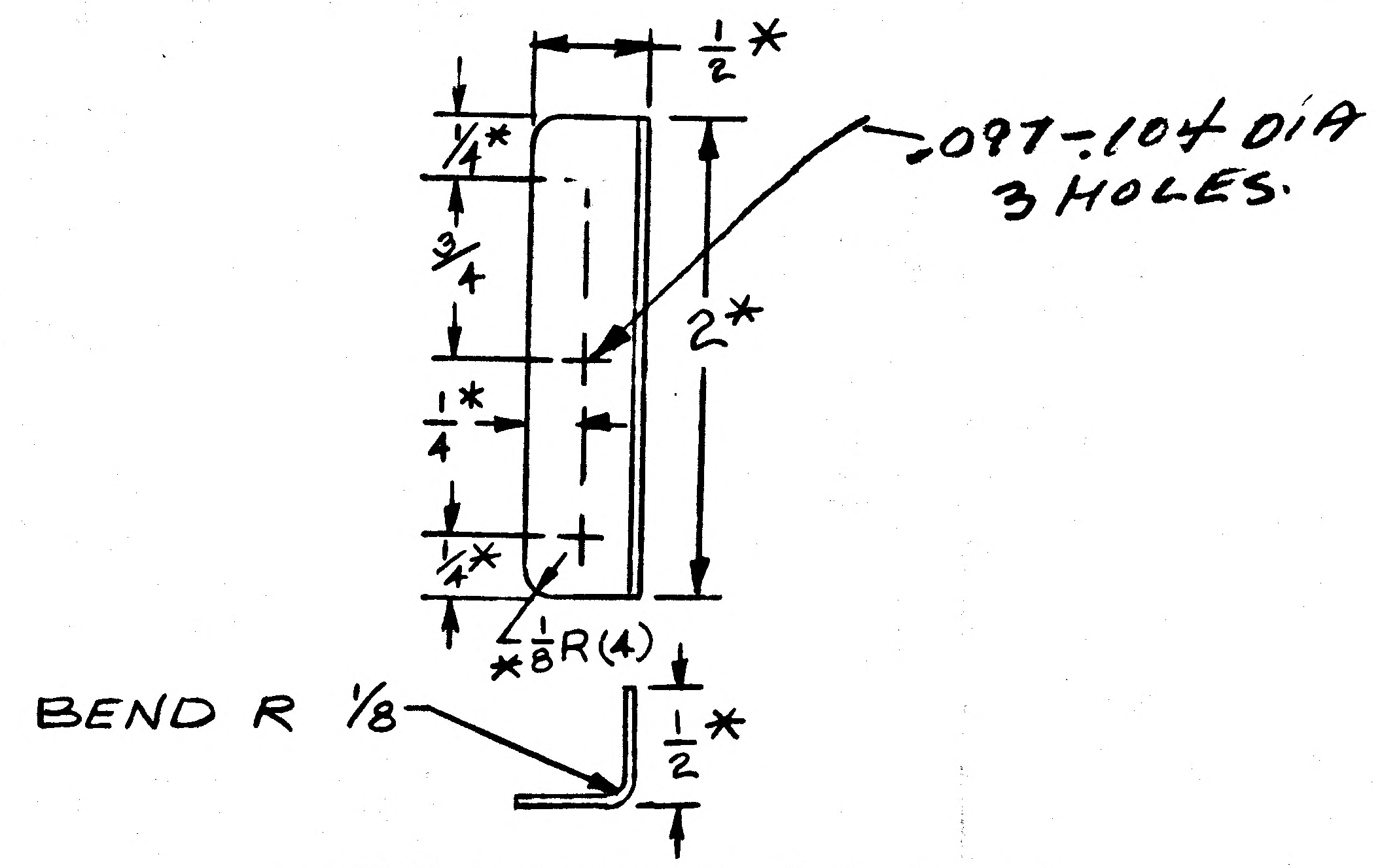


SECTION Δ-Δ
'SECT FOR E.O. REF ONLY.

NOTE: -13-1 IS TO BE MADE BY REWORKING -13 AS SHOWN & BRUSH ALODINE BARE SURFACE PER LSP-14-9010

(-13) SHOWN (REF)
(-14) OPP (REF)
(-13-1) (SAME AS -13 EXCEPT AS SHOWN) (ADD)

IN FLD/DWG & B/M ADD -13-1 (SAME AS -13 EXCEPT AS SHOWN)
IN MOD/BLK FOR NEXT ASSY LDW280-60541 ONLY
DELETE -13 (1 REQD)
ADD -13-1 (1 REQD)



LDW280-18762-21 (ADD)
NEXT ASSY: LDW280-6054-1 (1) REQD
MATL: .050 AL ALLOY, 7075, QQ-A-250/12
PROCESS: T6 FINISH: ANODIZE (88) LSP-14-9030

IN FLD/DWG, B/M & MOD/BLK ADD -21

* DIM ARE FOR REF ONLY, DO NOT INCORPORATE ON DRAWING

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD3890 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ELIMINATE INTERFERENCE WITH PROPT. LINE SUPPORT ON LDW280-60614 INSTL	IN FLD/DWG, B/M & MOD/BLK ADDED -13-1 & -21. IN MOD/BLK DELETED NEXT ASSY LDW280-60541 REQMTS FROM -13.	R 2-18-70 JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	
		LTA-11 (23)	
		LTA-30R/1 (46)	

DRAWING CHANGE REQD: REVISE DWG	RECURD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓						KC				
				DATE	2-1-70 VDI			2/17/70	2/13/70	2-13-70	2/17/70	2-14-70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE~D/S~LOWER DECK~INBD & OUTBD CORNER STIFFENER	LDW280-18762	A4

ISSUED BY LIAISON J. MALONEY 2/12/70 SECTION V. D. I. GROUP NO. 335 PL 25

LDW280-18763

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		THRU	
	LDW280-60544	LM-10(40)	1
	LDW280-60543	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		THRU	
	LDW280-60543	LM-10 (40)	1
	LDW280-60542	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		THRU	
	LDW280-60542	LM-10 (40)	1
	LDW280-60541	LTA-3DR/1(460)	1
		LTA-11 (23)	1
		LM-14(44)	1
		THRU	
LM	LDW280-60541	LM-10(40)	1
PART NO. LDW 280-18763-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
LM	LDW280-60544	LM-10 (40)	1
PART NO. LDW280-18763-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LTA-3DR/1(460)	1
		LTA-11(23)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60542	LM-10(40)	1
LDW280-18763-16 ——			
LM	LDW280-60541	LTA-3DR/1(460)	1 EA
		LTA-11 (23)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60541	LM-10(40)	1 EA
PART NO. LDW 280-18763-11-13 & -19		GAEC SCH NO. 50-5	

WORK PACKAGE FUNCTION 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH.

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	~	GRUMMAN REL INFO	
		PRIM NO.	VC(001)
LAST DASH NO. USED	-19	207	ME-16-9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 54

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 7-26-69	
LAYOUT BY	G. BELEV GB 7-3	
CHECKED BY	D. FASS 7-31-69	
GR LEADER	D.W. Hamm 9-4-69	
VEH DES INT	Thompson 9-8-69	
STRUCTURES	WJS 9/5/69	PROJ ENGR
STRUCTURES	W/H 9/15/69	REL GROUP Marsh

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ LOWER DECK ~
INBOARD CORNER STIFFENER

SIZE B
CODE IDENT NO. 26512
LDW280-18763
SCALE NONE
SHEET 1.00 OF 3

G 77.1 12-65

CDR 091269

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18763-19	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.071 x 2 x 11	T6	88	
		-17						.040 x 2 x 12			
		-16						.050 x 2 x 12			
		-15						.050 x 2 x 12			
		-13						.050 x 2 x 13			
		LDW280-18763-11	E	STIFFENER	AL ALLOY SH	QQ-A-250/12	7075	.050 x 14 x 17	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18763

SCALE NONE
SHEET 2.00

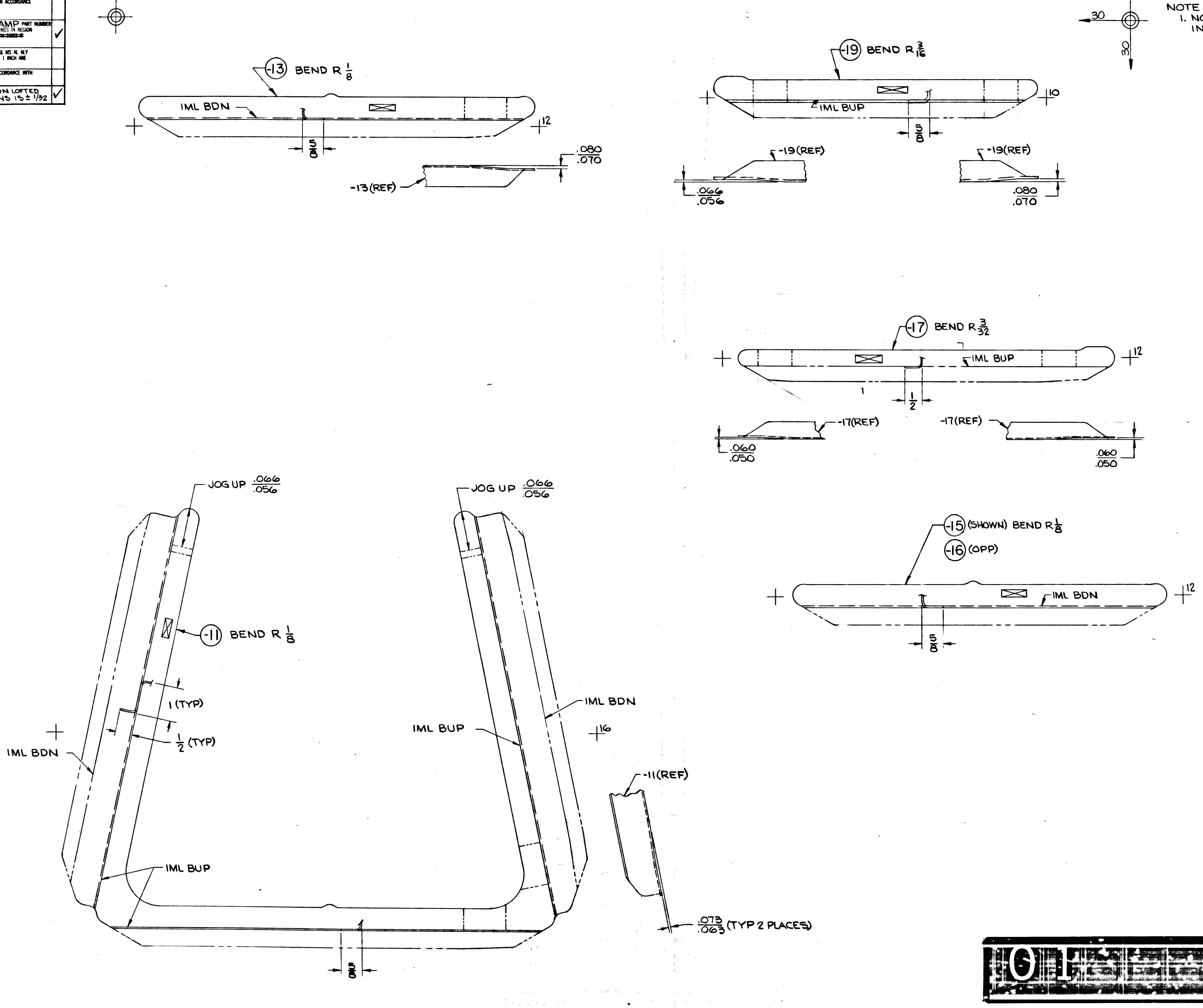
ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



-13 BEND R 1/8
IML BDN
12
5/8
.080
.070
-13 (REF)
-19 BEND R 3/16
10
IML BUP
5/8
-19 (REF)
.066
.056
-19 (REF)
.080
.070
30
30
-17 BEND R 3/32
IML BUP
12
1/2
-17 (REF)
.060
.050
-17 (REF)
.060
.050
-15 (SHOWN) BEND R 1/8
-16 (OPP)
IML BDN
12
5/8
JOG UP .066/.056
JOG UP .066/.056
-11 BEND R 1/8
1 (TYP)
1/2 (TYP)
IML BDN
IML BUP
IML BDN
16
IML BUP
5/8
-11 (REF)
.073/.063 (TYP 2 PLACES)

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-18763
SCALE FULL		SHEET 3.00

FOR PHOTO 1 REPRODUCTION

LDW280-18763

LDW280-18763

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18763
EO NO. A1
CONTROL INFO NO. LDW280B9170

IN MOD. BLK, REMOVE -11, NEXT ASSEMBLY LDW280-60541

EFFECTIVE ON LM-10(40) THRU LM-14(44), LTA-11(23), LTA-3DR/1(460).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3994 PKG 57

REASON FOR EO: REMOVED REQUIREMENTS FOR MESA SUPT. FITTING

DESCRIPTION OF EO: IN MOD. BLK, REMOVED -11

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
LM		LM-14(44),	LTA-11(23),
LM		LTA-3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY						NM		
DATE	11/6/69			11-6-69	11-6-69		11/6/69	11/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR.	GAEC EO RELEASE DK 11/7/69

PRIORITY: C
DRAWING TITLE: D/S ~ LOWER ZEE BK ~ INBD CORNER STIFFENER
DRAWING NO. LDW280-18763
EO NO. A1

CDR 11/07/69
ISSUED BY W. LEIFER/G. HANSMAN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R(159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1EA)	LDW200-55518	SEE DWG	A7
	-19(1)	-55525		
-18760	-11,-12,-13,-16 & -17(1EA)	-55518		A2
	-11,-12,-14,-15,-17,-18, -19 & -20 (1EA)	-55519		
	-11,-12,-13,-17, -18 & -20 (1EA)	-55524		
	-11,-12,-13,-14,-15-16 -17,-18,-19 & -20(1EA)	-55525		
-18764	-11 & -13 (1EA)	-55525		A3
-18761	-12,-13,-14,-15,-16, -17,-18 & -19(1EA)	-55518		A2
	-11,-12,-13,-14,-17 & -18(1EA) & -15(2)	-55519		
	-11,-14,-15,-16, -17 & -18 (1EA)	-55524		
	-11,-12,-14,-17 & -18 (1EA), & -15 (2)	-55525		
-18762	-11, -13, & -14 (1EA)	-55518		A3
	-12,-13 & -14 (1EA)	-55519		
	-13(1)	-55524		
	-11,-12 & -13 (1EA)	-55525		
-18766	-11(1) & -13(2)	-55518		A1
		-55519		
		-55524		
	-11(1) & -13(2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1EA)	-55519		
	-15 & -17 (1EA)	-55525		
	-15(1)	LDW200 -55524		

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3890 PKG 95 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF LOWER DECKS FOR EXTENDED TANKS	FOR *, ADDED LTA-5/R EFF, N/A △	JK 11/19/69

MODEL	EFFECTIVITY: E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS	
LM	LFM507	LTA-5/R(159)		✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP

APPROVED BY	PSF						PP	
DATE	11-18-69			11/18			11/18/69	11/19/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18764

PART NO. LDW280-18764-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11(23)	1
LM		LTA-3DR1(460)	1
LM		LM-14(44)	1
LM		LM-13(43)	1
LM		LM-12(42)	1
LM		LM-11(41)	1
LM	LDW280-60541	LM-10(40)	1

GAEC SCH NO.

PART NO. LDW280-18764-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11(23)	1
LM		LTA-3DR1(460)	1
LM		LM-14(44)	1
LM		LM-13(43)	1
LM		LM-12(42)	1
LM		LM-11(41)	1
LM	LDW280-60543	LM-10(40)	1

GAEC SCH NO.

PART NO. LDW280-18764-11 & -13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
LM		LTA-3DR1(460)	1
LM		LM-14(44)	1
LM		LM-13(43)	1
LM		LM-12(42)	1
LM		LM-11(41)	1
LM	LDW280-60544	LM-10(40)	1

GAEC SCH NO. 50-5

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED —
LAST DASH NO. USED -17

GRUMMAN REL INFO
PRIM NO. 207
1/C(001) ME-16 9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890-PKG 54

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	F. HIPPLER 7-29-69
LAYOUT BY	BELEV 9-8
CHECKED BY	8-9-69
GR. LEADER	9-9-69
VEH DES INT	Thogeson 9-11-69
STRUCTURES	WPS 9/15/69
STRUCTURES	WJH 9/15/69
PROJ ENGR	9/16/69
REL GROUP	March 9/17/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-AFT LOWER DECK
He TRUSS SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18764
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 091269

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18764-17	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.063 x 3 x 12	T6	88	
		↕ -15	↕	ANGLE	↕	↕	↕	.063 x 2 x 10	T6	88	
		↕ -13	↕	BRACKET	↕	↕	↕	.050 x 13 x 18	T6	88	
		LDW280-18764-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050 x 2 x 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP , BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18764

SCALE NONE SHEET 2.00

ENG 77.2 7-65

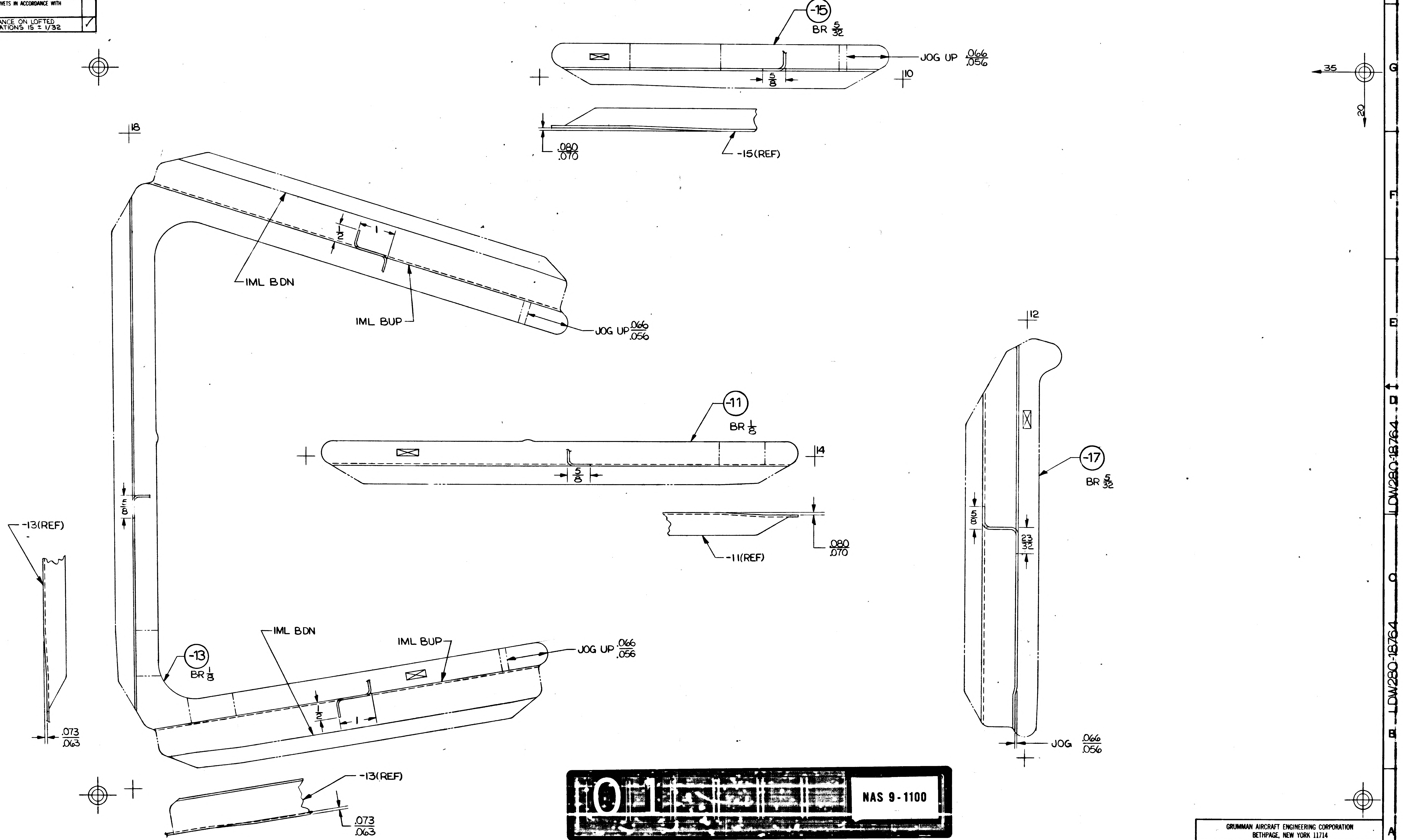
01

NAS 9-1100

Overlay & TRAM OK.
TS 7-14-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.



-15
BR 5/32
JOG UP .066/.056
5/8
10
.080/.070
-15(REF)
18
IML BDN
IML BUP
1/2
1
JOG UP .066/.056
-11
BR 1/8
14
5/8
.080/.070
-11(REF)
12
-17
BR 5/32
5/8
23/32
JOG .066/.056
-13(REF)
.073/.063
IML BDN
IML BUP
JOG UP .066/.056
-13
BR 1/8
1/2
1
-13(REF)
.073/.063
35
20

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18764
SCALE FULL		SHEET 3.00

LDW280-18764

LDW280-18764

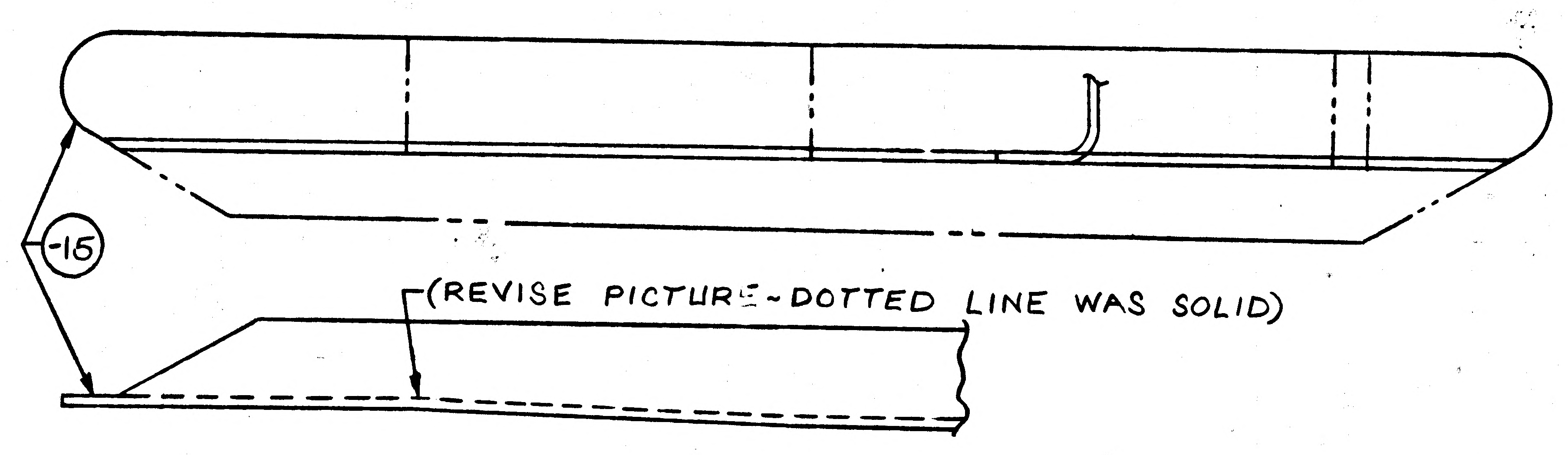
DWG 73.5 REV. 5-67

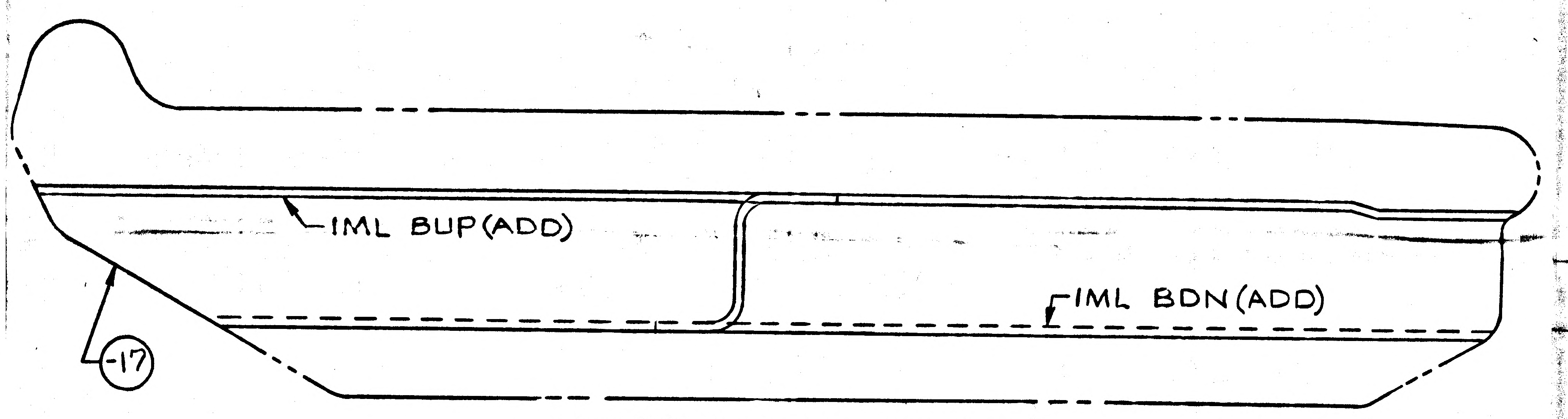
FOR PHOTO REPRODUCTION

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18764
EO NO. A1
CONTROL INFO NO. LM-2-5640





NOTE: (ROTATED 90° CCW)

LOFTED DWG

(2)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO
DRAWING CORRECTION ONLY
(FLANGE DIRECTION SHOWN
INCORRECTLY & BEND DIRECTION
CALLOUT OMITTED)

DESCRIPTION OF EO
FOR -15 REVISED PICTURE, HIDDEN LINE WAS
SOLID
FOR -17 ADDED CALLOUTS: "IML BUP" & "IML BDN"

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY	[illegible]			[illegible]	KC	[illegible]	[illegible]	[illegible]
DATE	10/24/69			10-24-69	10/20/69	10/20/69	10/24/69	10/21/69

PRIORITY: E
DRAWING TITLE: ZEE~DESCENT STAGE~AFT LOWER DECK~HELIUM TRUSS SUPPORT
DRAWING NO.: LDW280-18764
EO NO.: A1

ISSUED BY LIAISON J. MALONEY 10/20/69 X3604
SECTION V.D.I.
GROUP NO. 335
PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1757
CONTROL INFO NO. LDW280B8589

FOR THE FOLLOWING DWGS.* & THEIR DASH NO.'s*, LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1 (460) EFFECTIVITY. N/A LDW280-60543

DWG *	DASH NO.*	CHG. NO.	TITLE
LDW280-18770	-17	A1	SEE DWG
LDW280-18764	-15	A2	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PK. 56 (5)

REASON FOR EO
LOWER DECK RECONFIGURATION

DESCRIPTION OF EO
FOR *
REMOVED LM-10(40) THRU LM-14(44), LTA-11(23), & LTA-3DR/1 (460) EFFECTIVITY.

GAEC EO RELEASE
SB 11-17-9
VS 11/19/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
LM		LM-14 (44), LTA-11(23),	
LM		LTA-3DR/1 (460)	

CDR 12/04/69

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WL				WPB			
DATE	11/14			11/13/69	11/?/69		11/17/69	11/14

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1757

ISSUED BY W. LEIFER / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R(159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 é -23 (1 EA)	LDW200 -55518	SEE DWG	A7
	-19(1)	-55525		
-18760	-11,-12,-13,-16 é -17(1 EA)	-55518		A2
	-11,-12,-14,-15,-17,-18, -19 é -20 (1 EA)	-55519		
	-11,-12,-13,-17, -18 é -20 (1 EA)	-55524		
	-11,-12,-13,-14,-15,-16 -17,-18,-19 é -20(1 EA)	-55525		
-18764	-11 é -13 (1 EA)	-55525		A3
-18761	-12,-13,-14,-15,-16, -17,-18 é -19(1 EA)	-55518		A2
	-11,-12,-13,-14,-17 é -18(1 EA) é -15(2)	-55519		
	-11,-14,-15,-16, -17 é -18 (1 EA)	-55524		
	-11,-12,-14,-17 é -18 (1 EA), é -15 (2)	-55525		
-18762	-11, -13, é -14 (1 EA)	-55518		A3
	-12,-13 é -14 (1 EA)	-55519		
	-13 (1)	-55524		
	-11,-12 é -13 (1 EA)	-55525		
-18766	-11(1) é -13(2)	-55518		A1
		-55519		
		-55524		
	-11(1) é -13(2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 é -16 (1 EA)	-55519		
	-15 é -17 (1 EA)	-55525		
	-15 (1)	LDW200 -55524		

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, N/A △

GAEC EO RELEASE: VK 11/19/69

MODEL	EFFECTIVITY		
	E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP
APPROVED BY: PBT
DATE: 11-18-69
VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER: 11/18
STRESS GROUP
LIAISON ENGRG
PROJ ENGRG: 11/18/69
11/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

LDW280-18766

PART NO. LDW280-18766-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
	LDW280-60543	LM-10(40)	1
	LDW280-60542	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
	LDW280-60542	LM-10(40)	1
	LDW280-60541	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60541	LM-10(40)	1

PART NO. LDW280-18766-11 — GAEC SCH NO. 50-5

PART NO. -11(CONTINUED)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60541	LM-10(40)	2

PART NO. LDW280-18766-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60544	LM-10(40)	1

PART NO. -13(CONTINUED)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60544	LM-10(40)	2
	LDW280-60543	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
	LDW280-60543	LM-10(40)	2
	LDW280-60542	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60542	LM-10(40)	2

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	-	GRUMMAN REL INFO		
		PRIM NO.	JC(001)	
LAST DASH NO. USED	-13	207	ME-16-	9/17/9

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3890 PK 54

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	H. SCHWETER 7/7/69		
LAYOUT BY	G.BELEV GB 9-3		
CHECKED BY	J. Kastman 9-8-69		
GR. LEADER			
VEH DES INT	9-10-69		
STRUCTURES	WB 9/13/69	PROJ ENGR	9/16/69
STRUCTURES	MJ 9/15/69	REL GROUP	9/17/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

® TEE
DESCENT STAGE ~ LOWER DECK
MID & INBOARD PANEL STIF.

SIZE	CODE IDENT NO.	
B	26512	LDW280-18766

SCALE NONE

SHEET 1.00 OF 3

CDR 091569

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18766-13	E	TEE	AL ALY EXTR	QQ-A-200/11	7075-T6511	GS183A48DGX7 3/8	NOTES 2 & 3	NOTE 4	
		LDW280-18766-11	E	TEE	AL ALY EXTR	QQ-A-200/11	7075-T6511	GS183A71DGX7 1/2	NOTES 2 & 3	NOTE 4	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18766
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

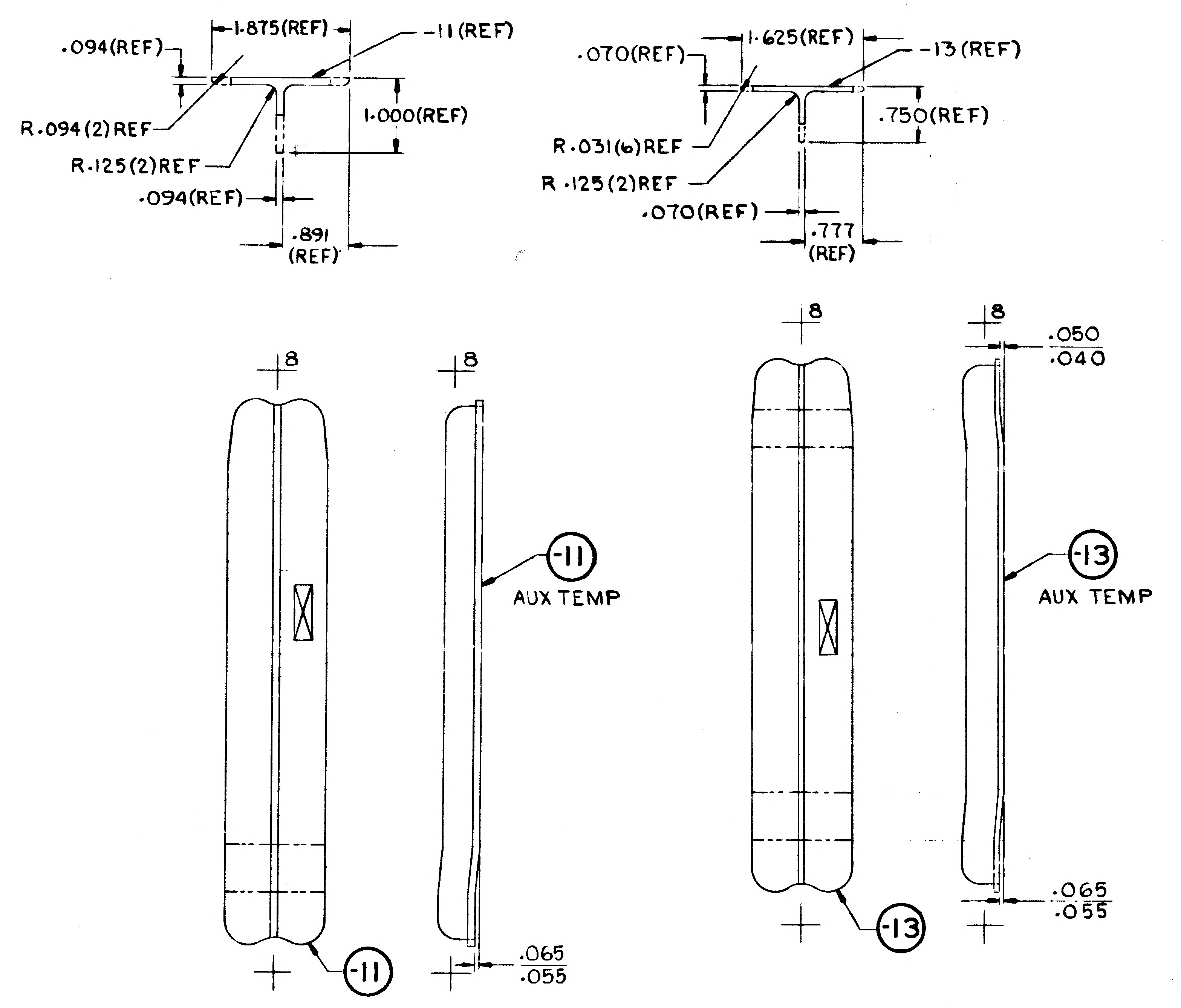
01

NAS 9-1100

LDW280-18766

OVERLAY TRANS OK ek 9/4/69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓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R.094(2)REF
R.125(2)REF
1.000(REF)
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.891 (REF)
.070(REF)
1.625(REF)
-13(REF)
R.031(6)REF
R.125(2)REF
.750(REF)
.070(REF)
.777 (REF)
8
8
-11
AUX TEMP
-11
.065
.055
8
8
.050
.040
-13
AUX TEMP
-13
.065
.055

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. –11 AND –13 TO BE HOT FORMED AT 350° F ± 10°F PER LSP 14-5300.
3. AGE -11 AND -13 TO T73 TEMPER BY AGING FOR 7½ TO 8½ HOURS AT 350°F ± 10°F.
4. SULPHURIC ACID ANODIZE PER MIL-A-8625, TYPE II, AFTER ANODIZING PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP 14-4305.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18766
SCALE FULL		SHEET 3.00

ENG 73.3 REV 5-67

FOR PHOTO REPRODUCTION

K2

LDW280-18766

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1759
CONTROL INFO NO. LDW280B9286

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY. △	DWG TITLE	CHG NO.
LDW280-18067	-21 & -23 (1 EA)	LDW200-55518	SEE DWG	A7
	-19 (1)	-55525		
-18760	-11, -12, -13, -16 & -17 (1 EA)	-55518		A2
	-11, -12, -14, -15, -17, -18, -19 & -20 (1 EA)	-55519		
	-11, -12, -13, -17, -18 & -20 (1 EA)	-55524		
	-11, -12, -13, -14, -15, -16 -17, -18, -19 & -20 (1 EA)	-55525		
-18764	-11 & -13 (1 EA)	-55525		A3
-18761	-12, -13, -14, -15, -16, -17, -18 & -19 (1 EA)	-55518		A2
	-11, -12, -13, -14, -17 & -18 (1 EA) & -15 (2)	-55519		
	-11, -14, -15, -16, -17 & -18 (1 EA)	-55524		
	-11, -12, -14, -17 & -18 (1 EA), & -15 (2)	-55525		
-18762	-11, -13, & -14 (1 EA)	-55518		A3
	-12, -13 & -14 (1 EA)	-55519		
	-13 (1)	-55524		
	-11, -12 & -13 (1 EA)	-55525		
-18766	-11 (1) & -13 (2)	-55518		A1
		-55519		
		-55524		
	-11 (1) & -13 (2)	-55525		
LDW280-18763	-15 (1)	-55518	SEE DWG	A2
	-15 & -16 (1 EA)	-55519		
	-15 & -17 (1 EA)	-55525		
	-15 (1)	LDW200 -55524		

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 95	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF LOWER DECKS FOR EXTENDED TANKS	FOR *, ADDED LTA-5/R EFF, N/A △	(E) VK 11/19

MODEL	EFFECTIVITY E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM507	LTA-5/R(159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PST							
✓		NOT REQ'D		DATE	11-18-69			11/18			11/18/69	
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1759

CDR 12-5-69
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18767

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60542	LTA-11 (23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60542	LM-10(40)	1

PART NO. LDW280-18767-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60544	LTA-11(23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60544	LM-10(40)	1

PART NO. LDW280-18767-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11 (23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60543	LM-10(40)	1

PART NO. LDW280-18767-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60541	LTA-11 (23)	1
		LTA-3DR/1(460)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(.1)	1
LM	LDW280-60541	LM-10(40)	1

PART NO. LDW280-18767-11 GAEC SCH NO. 50-5

WORK. PKG FUNTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00			2.00			3.00	
REV								
SHEET	4.00			5.00			6.00	
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 JK(00) ME-16-9/3/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/64 .010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 54

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY J. VICINANZA

LAYOUT BY G. BELEV

CHECKED BY Szalwinski 8-8-69

GR. LEADER [illegible] 9/4/69

VEH. DES. INT Thorjusen 9-4-69

STRUCTURE W/B 9/5/69

STRUCTURE W/H 9/5/69

PROJ ENGR [illegible] 9/9/69

REL GROUP [illegible] 9-9-69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CAPSTRIP
DESCENT STAGE
LOWER DECK ~ RING

SIZE B

CODE IDENT NO. 26512

LDW280-18767

SCALE NONE

SHEET 1.00 OF 6

ENG 77.1 12-65

CDR 091569

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18767-17	E	RING			MAKE FROM	LDW280M18116-11	NONE	SEE NOTE 2&3	SH6
								LDW280-18767-15	E	RING			MAKE FROM	LDW280M18116-11	NONE	↑	SH5
								LDW280-18767-13	E	RING			MAKE FROM	LDW280M18116-11	NONE	↓	SH4
								LDW280-18767-11	E	RING			MAKE FROM	LDW280M18116-11	NONE	SEE NOTE 2&3	SH3

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18767

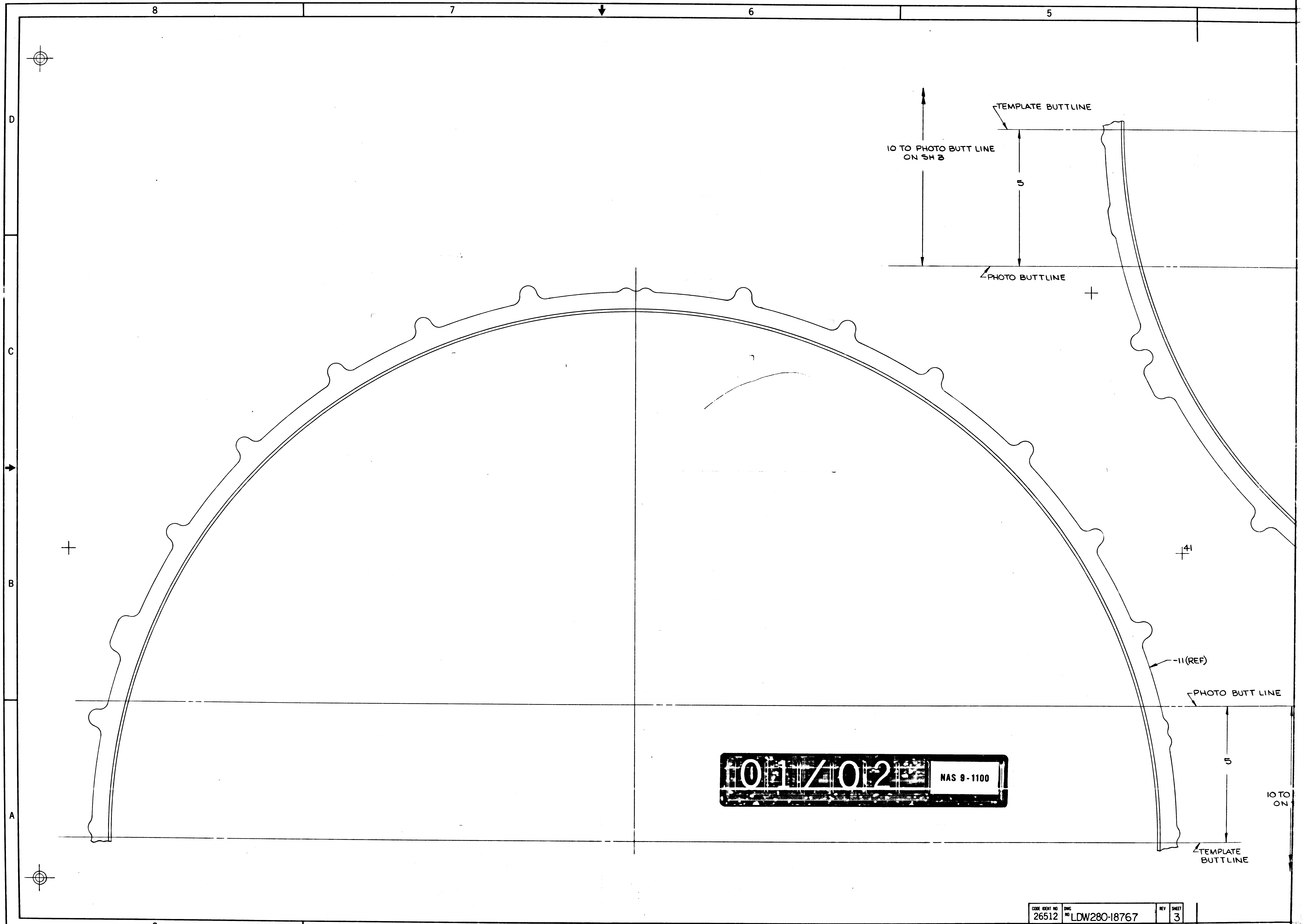
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
TEMPLATE BUTTLINE
10 TO PHOTO BUTT LINE
ON SH 3
5
PHOTO BUTTLINE
41
-11 (REF)
PHOTO BUTT LINE
5
10 TO
ON
TEMPLATE
BUTTLINE

01/02 NAS 9-1100

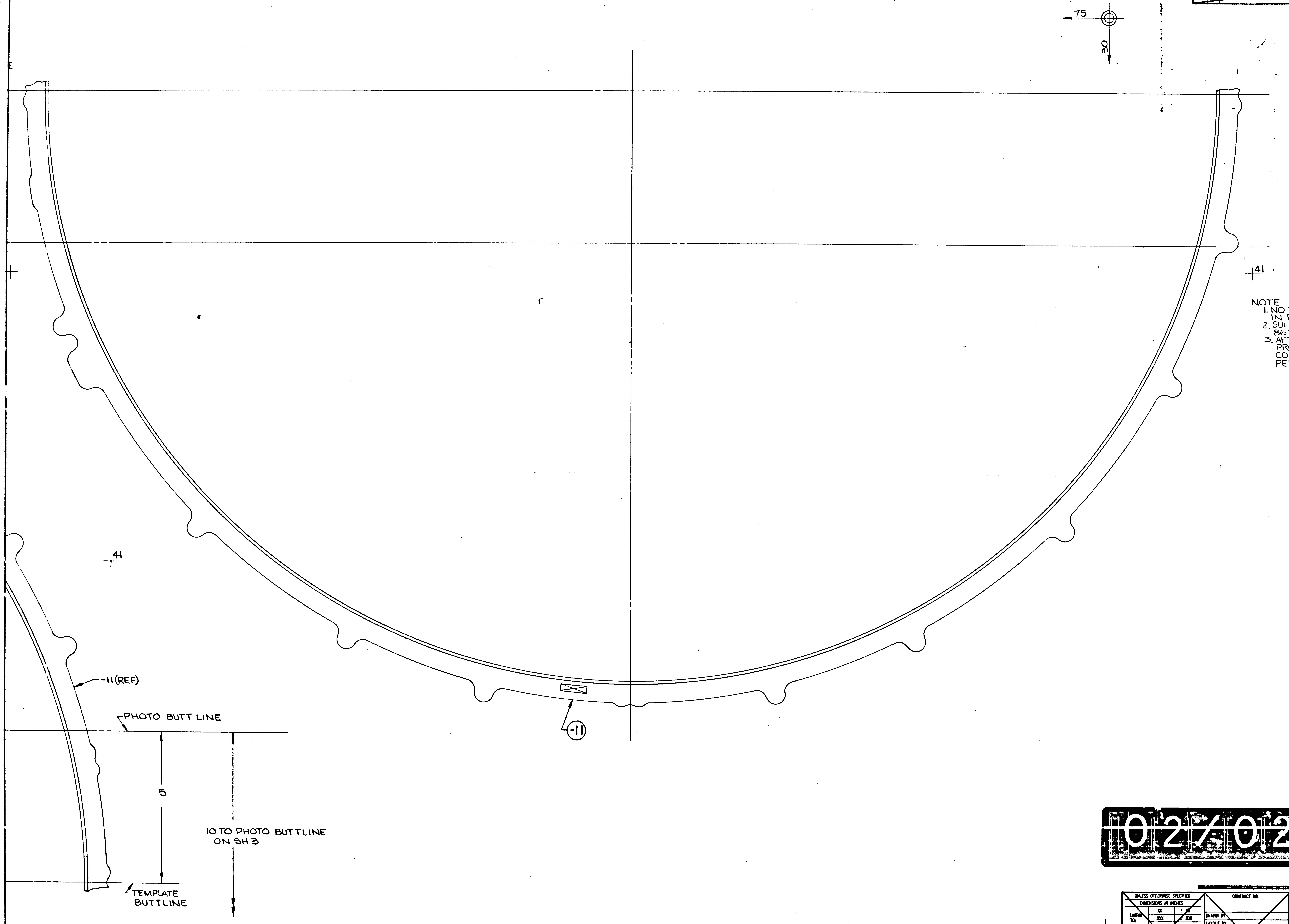
CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18767		3

FRAME 1 FRAME 2

[illegible] TRAM O.K.
[illegible] 7-23-69

REVISIONS						
ZONE	LTR	~~DESCRIPTION~~	~~EFF CODE~~	MODEL	DATE	APPROVED

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS $\pm\frac{1}{32}$	✓



NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS
2. SULPHURIC ACID ANODIZE PER MIL-A-8625 TYPE II
3. AFTER SULPHURIC ACID ANODIZE PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP 14-4305.

02/02 NAS 9-1100

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOV'T APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18767
SCALE FULL		SHEET 3.00

K2

1 FOR PHOTO REPRODUCTION 2FR

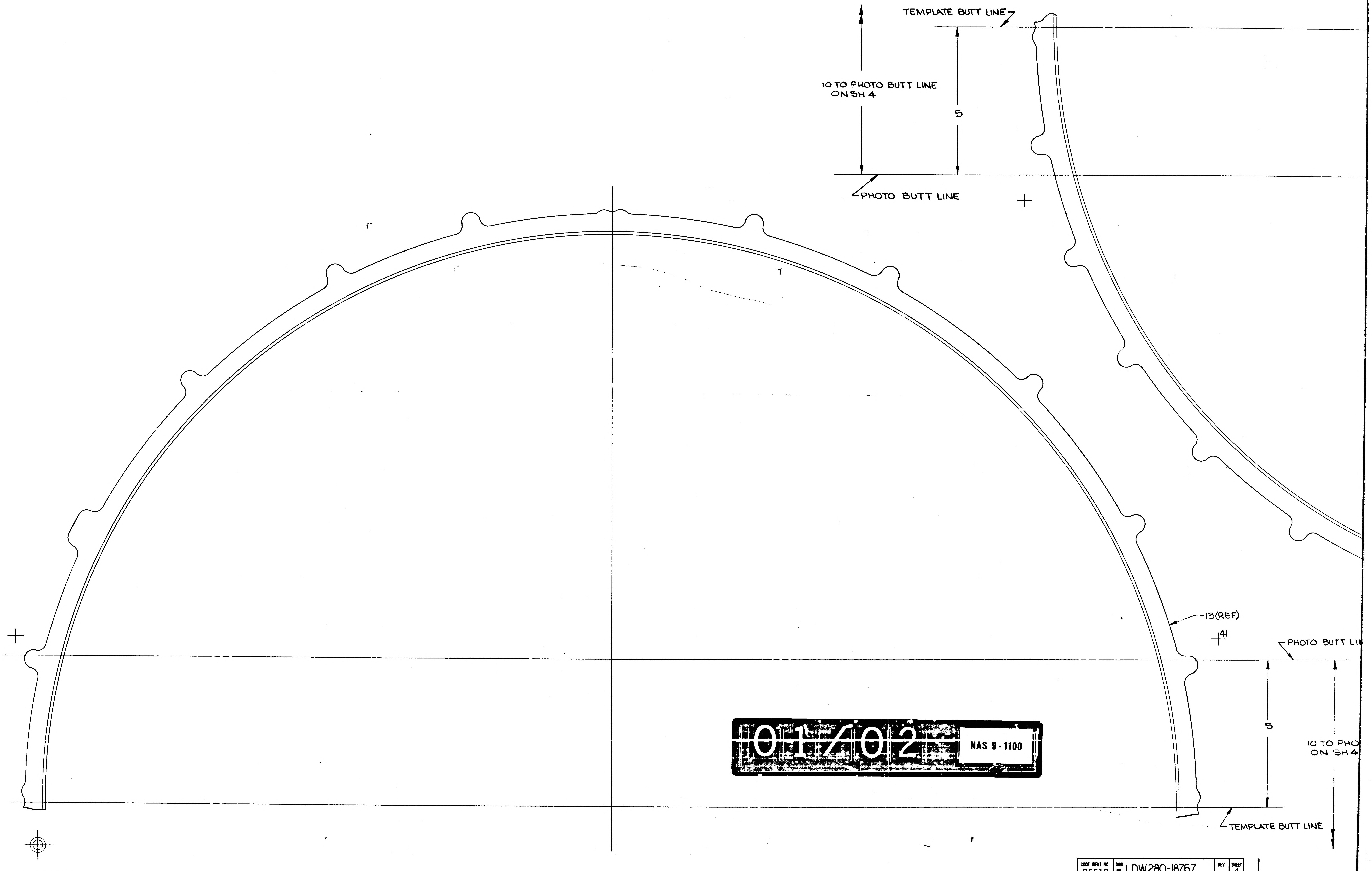
PRINTING INFO ONLY
DWG SIZE 34 X 88
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT

DISTR. LIST #

LDW280-18767
LDW280-18767

W280-18767	REV	SHEET 3

FRAME 1 FRAME 2



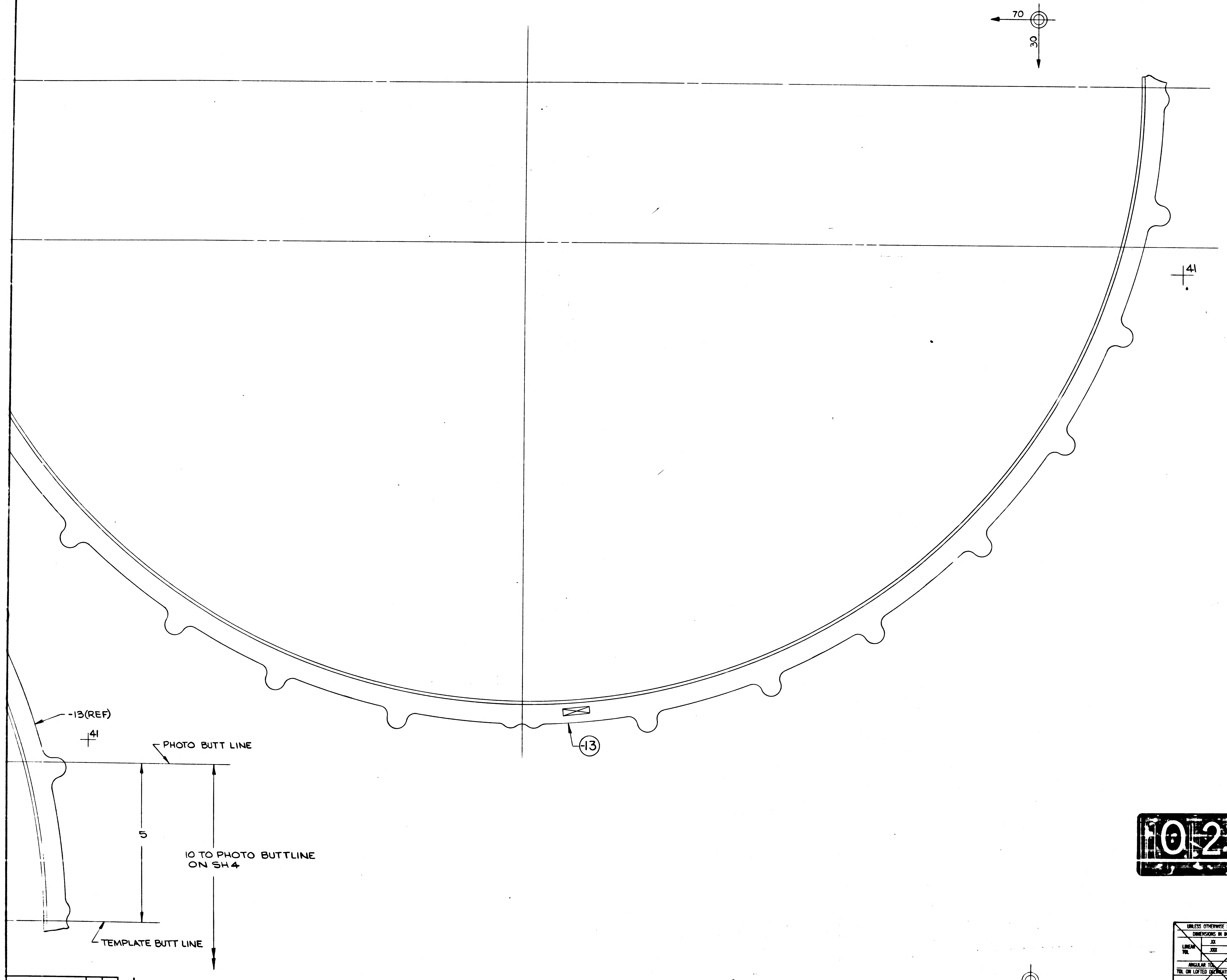
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SH 4
5
PHOTO BUTT LINE
-13(REF)
41
PHOTO BUTT LI
5
10 TO PHO ON SH4
TEMPLATE BUTT LINE

01/02 NAS 9-1100

CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18767		4

FRAME 1 FRAME 2

overlay & TRAM o.k.
TS 7-23-69



70
30
41
-13(REF)
41
-13
PHOTO BUTT LINE
5
10 TO PHOTO BUTTLINE ON SH4
TEMPLATE BUTT LINE

02/02 NAS 9-1100

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED

W280-18767 REV SHEET 4
FRAME 1 | FRAME 2

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

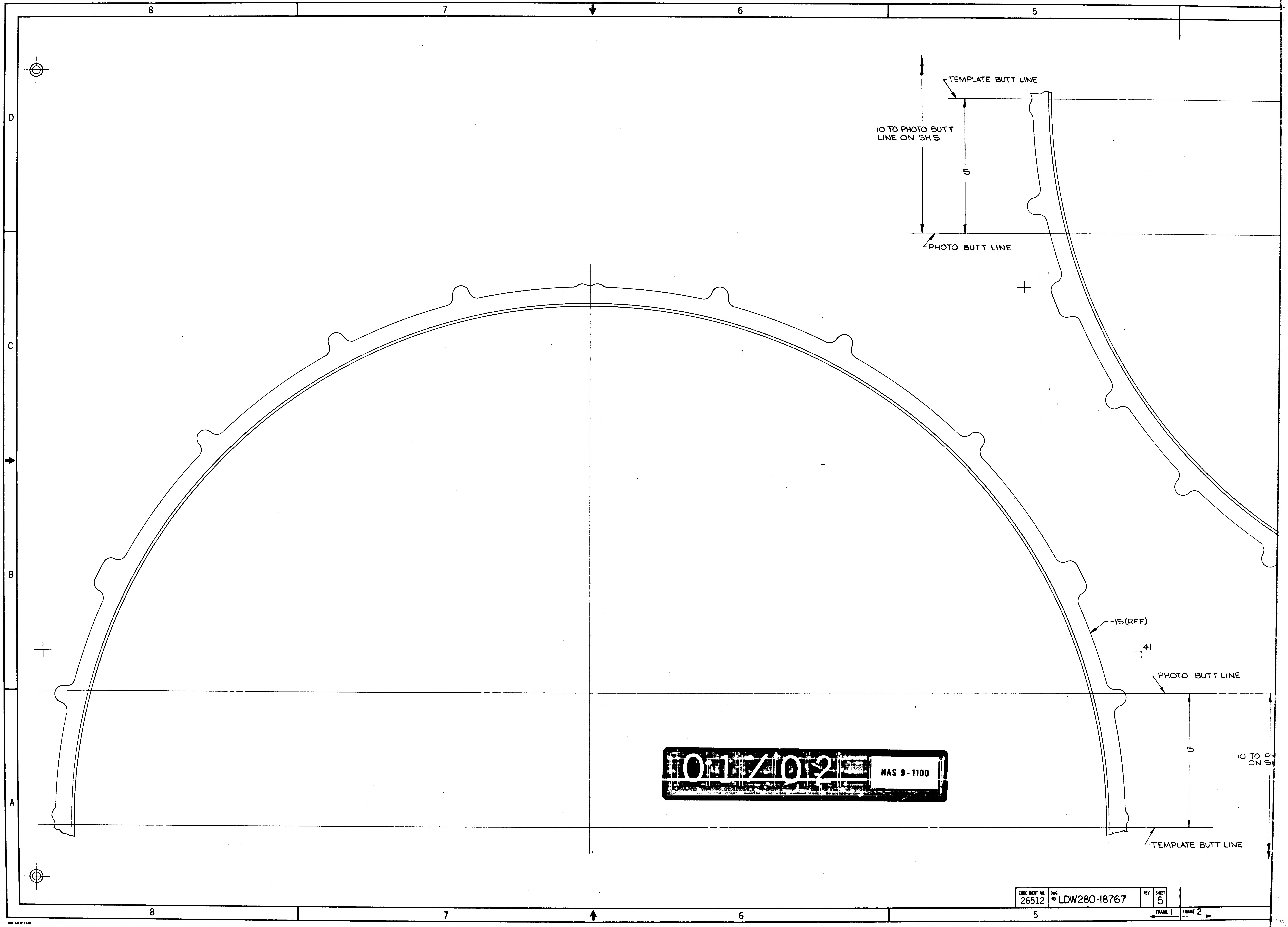
GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18767

SCALE FULL
SHEET 4.00
K2
1 FOR PHOTO REPRODUCTION 2FR
DISTR. LIST #

LDW280-18767
LDW280-18767

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 6.5 SQ FT


8
7
6
5
D
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE ON SH 5
5
PHOTO BUTT LINE
-15(REF)
41
PHOTO BUTT LINE
5
10 TO PH
ON S
TEMPLATE BUTT LINE

01/02 NAS 9-1100

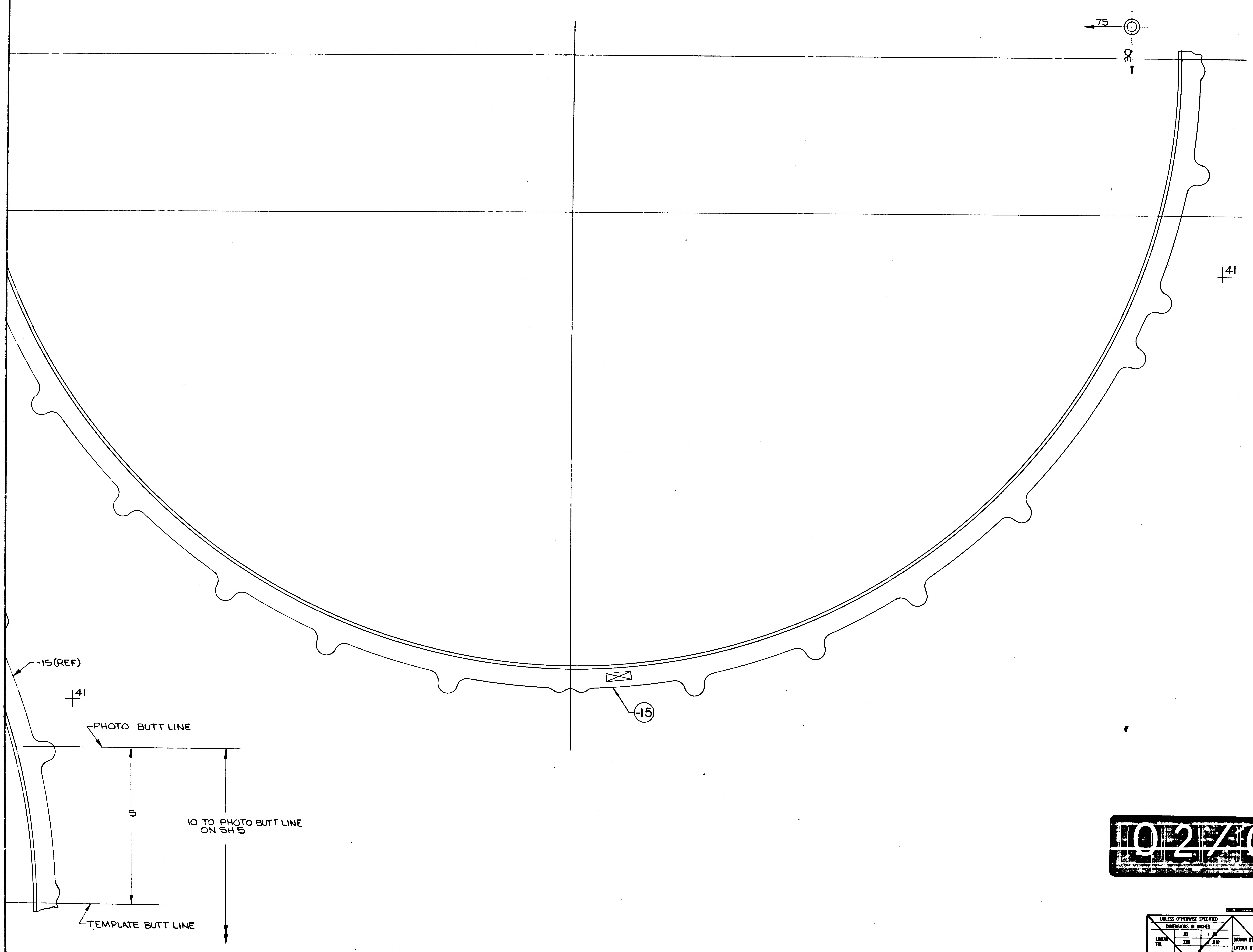
CODE IDENT NO.	DWG NO.	REV	SHEET
26512	LDW280-18767		5

FRAME 1 | FRAME 2

overlay & TRAN o.k.
T.S. 7-17-69

REVISIONS

ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED



75
30
41
-15(REF)
41
-15
PHOTO BUTT LINE
5
10 TO PHOTO BUTT LINE ON SH 5
TEMPLATE BUTT LINE
4
3
2
1
D
C
B
A

02/02

NAS 9-1100

LDW280-18767

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.

DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18767
SCALE FULL		SHEET 5.00

K2

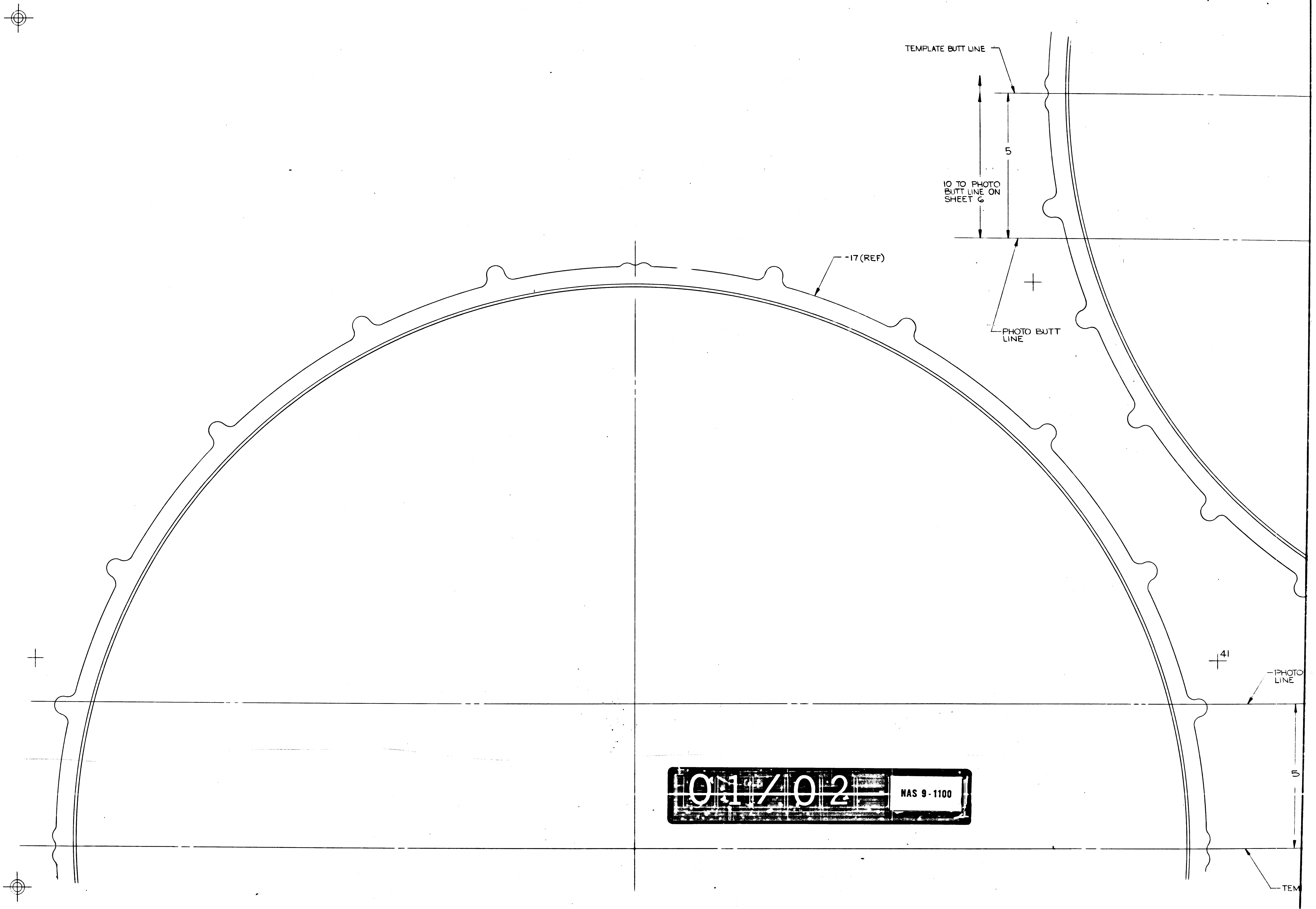
1 FOR PHOTO REPRODUCTION 2FR

DISTR. LIST #

PRINTING INFO ONLY
DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 6.5 SQ FT

280-18767 | REV | SHEET 5

FRAME 1 | FRAME 2


TEMPLATE BUTT LINE
5
10 TO PHOTO BUTT LINE ON SHEET 6
PHOTO BUTT LINE
-17 (REF)
41
-PHOTO LINE
5
-TEM

01/02 NAS 9-1100

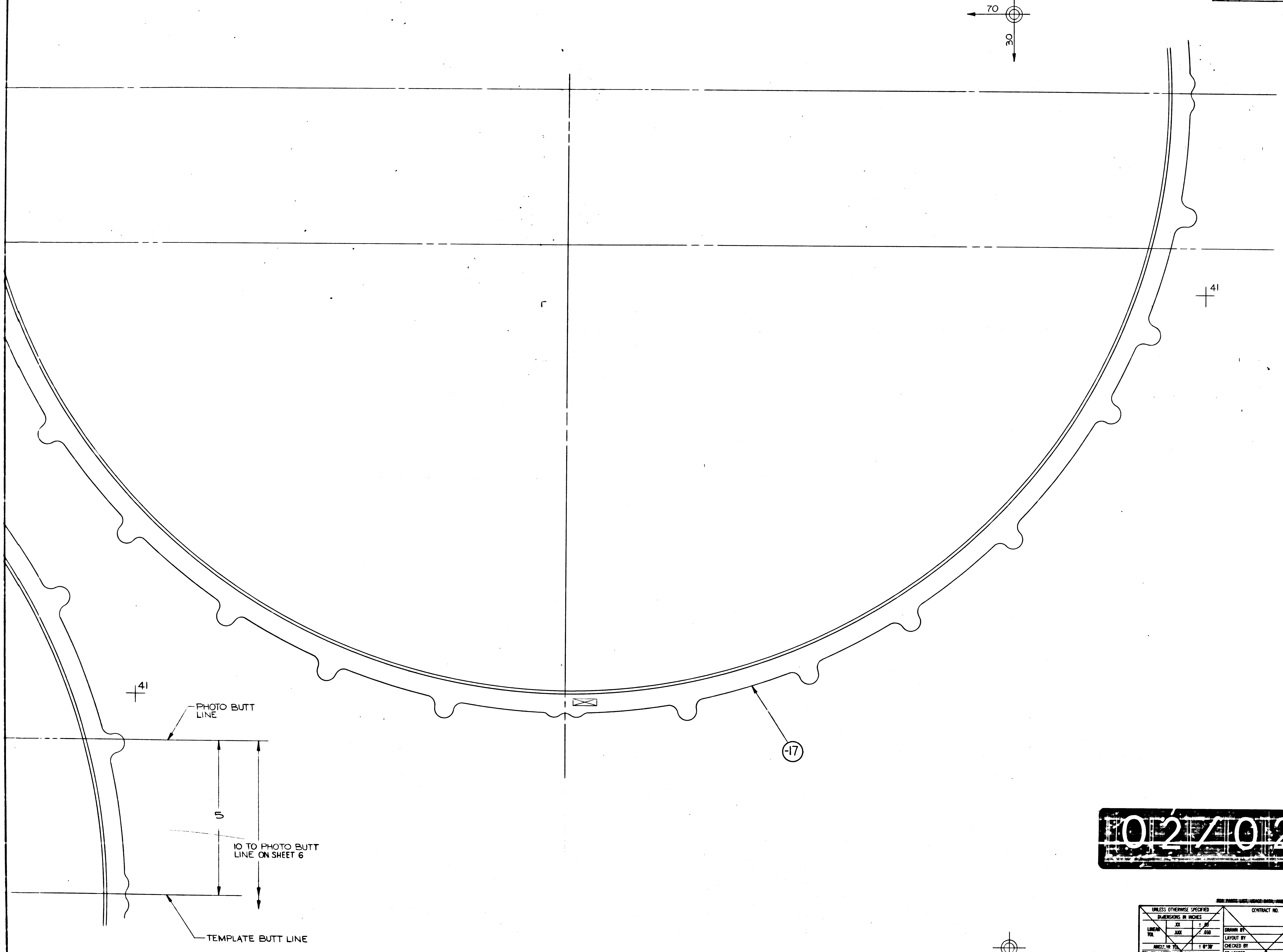
CODE IDENT NO	DWG NO	REV	SHEET
26512	LDW280-18767		6

FRAME 1 | FRAME 2

OVERLAY OK

TEAM OK.
TS 7 13 69

REVISIONS						
ZONE	LTR	DESCRIPTION	EFF CODE	MODEL	DATE	APPROVED



02/02 NAS 9-1100

~~FOR PARTS LIST, USAGE DATA, AND DWG SH STATUS, SEE DOCUMENT SAME NUMBER PREFIXED PL~~

UNLESS OTHERWISE SPECIFIED		
DIMENSIONS IN INCHES		
LINEAR TOL	.XX	± .03
	.XXX	± .010
ANGULAR TOL		± 0°30'
TOL ON LOFTED DELINEATIONS IS		

CONTRACT NO.
DRAWN BY
LAYOUT BY
CHECKED BY
GR LEADER
REL GROUP
PROJ ENGR
GOVT APPD

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
J	26512	LDW280-18767

SCALE FULL SHEET 6.00 OF

1 FOR PHOTO REPRODUCTION 2FR

K2

DWG SIZE 34 X 98
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6.5 SQ FT
PRINTING INFO ONLY

DISTR. LIST #

LDW280-18767

LDW280-18767

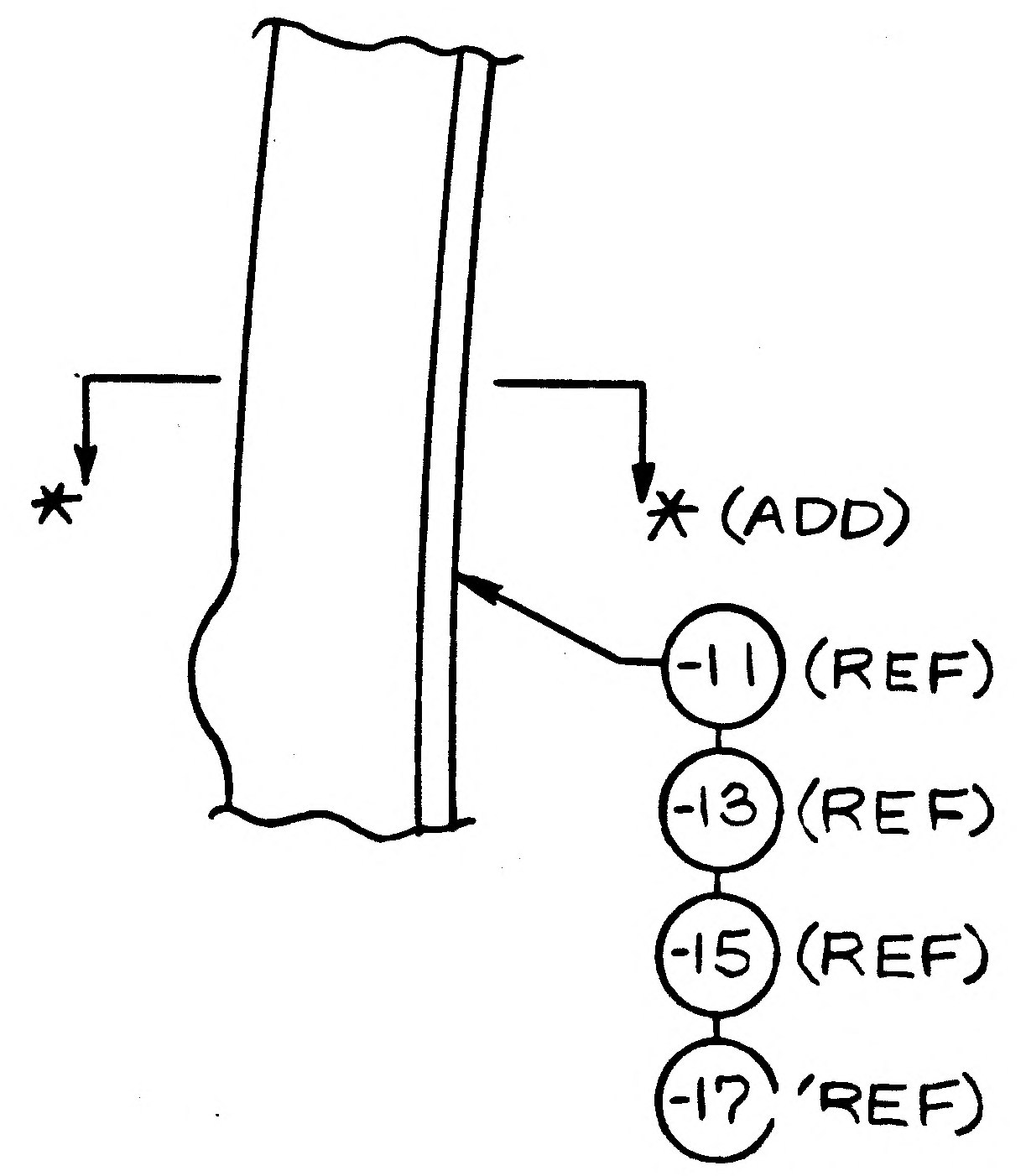
	REV	SHEET
W280-18767		6

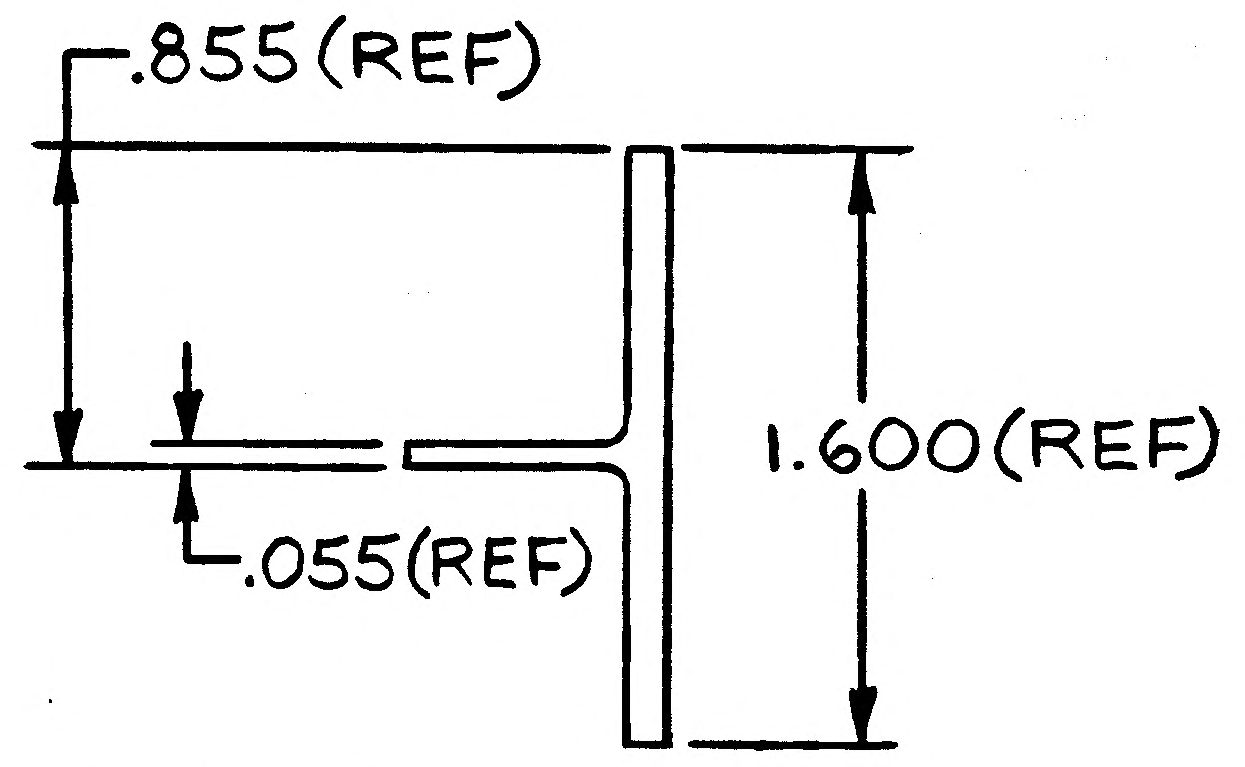
FRAME 1 FRAME 2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18767	EO NO. A1
CONTROL INFO NO. LM-2-5684	





SECTION *-* (ADD)
(TYPICAL 4 PLACES)

FOR -11, 13, -15 & -17
ADD SECTION *-* AS SHOWN

* DENOTES NEXT AVAILABLE SECTION LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890	(2)

REASON FOR EO	DESCRIPTION OF EO	R GAEC EO RELEASE
SECTION REQUIRED FOR FABRICATION DUE TO UNEQUAL FLANGE HEIGHTS	FOR -11, -13, -15 & -17 IN FLD/DWG ADDED SECTION *-*	JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
		QUAL TEST(72) DEST TEST(75)	
		LTA-11(23) LTA-3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				KC				
DATE	11/12/69			11/12/69	11/6/69	11/6/69	11/15/69	11/7/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CAPSTRIP~DESCENT STAGE LOWER DECK~RING	LDW280-18767	A1

ISSUED BY LIAISON J. MALONEY 11/6/69 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 1760
CONTROL INFO NO. LDW280B9287

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY △	DWG TITLE	CHG NO
LDW280-18767	-11(1)	LDW200-55518	SEE DWG	A2
	-13(1)	-55519		
	-15(1)	-55524		
	-17(1)	-55525		
-18716	-11, -13, -15 & -17 (1 EA)	-55519		A1
	-12, -16, -18 & -19 (1 EA)	-55524		
-17786	-19(1)	-55525		B5
-17787	-15 & -17 (1 EA)	-55525		B5
-18068	-15, -17 & -19 (1 EA)	-55525		A5
M18114	-11 (1)	-55518		A1
M18115	-11 (1)	-55518		A1
		-55519		
		-55524		
	-11(1)	-55525		
LDW280-18770	-11, -13 & -15 (1 EA)	LDW200 -55524	SEE DWG	A2

LFM

THIS IS AN ORIGINAL EO

CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, FOR N/A △

EFFECTIVITY: E ⟷ I
LM LFM507
GAEC UNIT NO.: LTA-5/R (159)
SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)
APPROVED BY: DATE 11-18-69 VDI
SUPPORT / RELIAB. GROUP / GROUP LEADER 11-18 / STRESS GROUP 11/18/69 / LIAISON ENGRG / PROJ ENGRG 11/18/69
GAEC EO RELEASE: 08 11-18-69; 11/19/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1760

CDR 12-5-69 HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-18770

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60543	LTA-11(23)	1 EA
↕	↕	LTA-3DR/1(460)	↕
↕	↕	LM-14(44)	↕
↕	↕	LM-13(43)	↕
↕	↕	LM-12(42)	↕
↕	↕	LM-11(41)	↕
LM	LDW280-60543	LM-10(40)	1 EA
PART NO. LDW280-18770-11, -13, -15 & -17		GAEC SCH NO. 50-5	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (6)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -17

GRUMMAN REL INFO
PRIM NO. 207
W(001)
ME-16-9/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PK 55

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY H.SCHWETER 7/23/69
LAYOUT BY ED.COLEMAN 8-8
CHECKED BY SZALWINSKI 7-30-69
GR.LEADER 9-9-69
VEH DES INT
STRUCTURES WPK 9/15/69
STRUCTURES 9/15/69
PROJ ENGR 9/16/69
REL GROUP 9/17/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

INTERCOSTAL
DESCENT STAGE-FWD LOWER DECK
MOD EQUIP STOWAGE TRUSS SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-18770
SCALE NONE
SHEET 1.00 OF 3

77.1 12-65

CDR 091769

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18770-17	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.071 X 4 X 8	T6	88	
		-15						.040 X 2 X 12			
		-13						.050 X 2 X 14			
		LDW280-18770-11	E	ANGLE	AL ALY SH	QQ-A-250/12	7075	.050 X 13 X 17	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H 6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18770

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

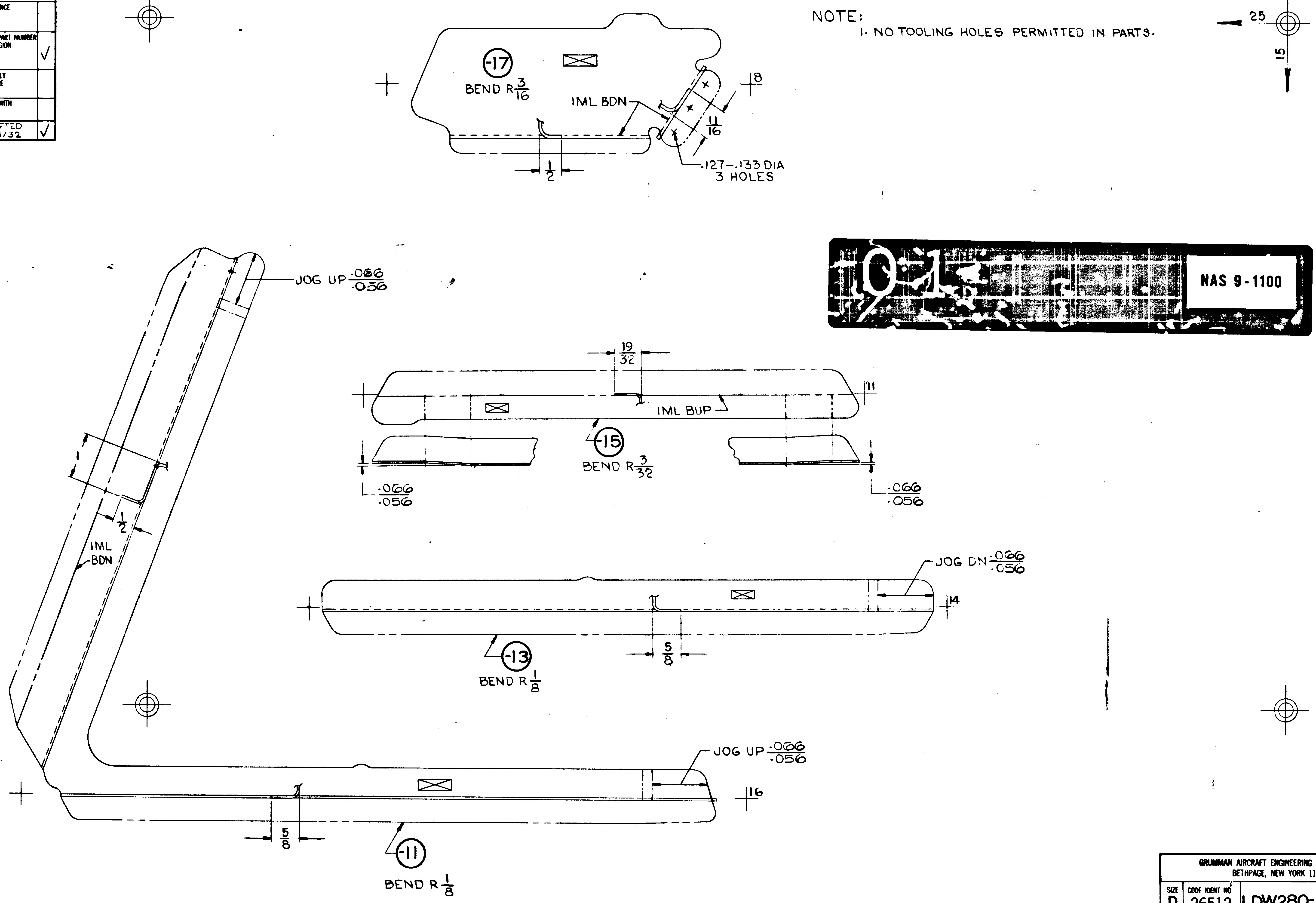
0 1

NAS 9-1100

LDW280-18770

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.



-17
BEND R 3/16
IML BDN
8
11/16
1/2
.127-.133 DIA
3 HOLES
25
15
JOG UP .066/.056
19/32
11
IML BUP
-15
BEND R 3/32
.066/.056
.066/.056
1/2
IML BDN
JOG DN .066/.056
14
-13
BEND R 1/8
5/8
JOG UP .066/.056
16
5/8
-11
BEND R 1/8

NAS 9-1100

LDW280-18770

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18770
SCALE FULL		SHEET 3-00

FOR PHOTO REPRODUCTION

K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 EO NO. 1757
CONTROL INFO NO. LDW280B8589

FOR THE FOLLOWING DWGS.* & THEIR DASH NO.'s*, LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44), LTA-11(23) & LTA-3DR/1 (460) EFFECTIVITY. N/A LDW280-60543

DWG *	DASH NO.*	CHG. NO.	TITLE
LDW280-18770	-17	A1	SEE DWG
LDW280-18764	-15	A2	SEE DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3994 PK. 56 (5)

REASON FOR EO: LOWER DECK RECONFIGURATION

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-14(44), LTA-11(23), & LTA-3DR/1 (460) EFFECTIVITY.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
LM		LM-14 (44), LTA-11 (23),	
LM		LTA-3DR/1 (460)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					WPB			
DATE	11/14			11/13/69	11/17/69		11/17/69	

GAEC EO RELEASE: 11-17-69; 11/19/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1757

CDR 12/04/69
ISSUED BY W. LEIFER / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LE0280 EO NO. 1760
CONTROL INFO NO LDW280B9287

FOR *, ADD LTA-5/R (159) EFF ~ FOR N/A NOTED △.

DWG NO *	DASH NO *	NEXT ASSY △	DWG TITLE	CHG NO
LDW280-18767	-11(1)	LDW200-55518	SEE DWG	A2
	-13(1)	-55519		
	-15(1)	-55524		
	-17(1)	-55525		
-18716	-11, -13, -15 & -17 (1 EA)	-55519		A1
	-12, -16, -18 & -19 (1 EA)	-55524		
-17786	-19(1)	-55525		B5
-17787	-15 & -17 (1 EA)	-55525		B5
-18068	-15, -17 & -19 (1 EA)	-55525		A5
M18114	-11 (1)	-55518		A1
M18115	-11 (1)	-55518		A1
		-55519		
		-55524		
	-11(1)	-55525		
LDW280-18770	-11, -13 & -15 (1 EA)	LDW200-55524	SEE DWG	A2

LFM

THIS IS AN ORIGINAL EO

CL. II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 95 (5)

REASON FOR EO: REDESIGN OF LOWER DECKS FOR EXTENDED TANKS

DESCRIPTION OF EO: FOR *, ADDED LTA-5/R EFF, FOR N/A △

GAEC EO RELEASE: 11-18-69

EFFECTIVITY: E ⟷ I

LM LFM507

GAEC UNIT NO.: LTA-5/R(159)

SUB CONTR UNIT NO.:

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY: VDI DATE: 11-18-69

SUPPORT RELIAB. GROUP

GROUP LEADER 11-18 STRESS GROUP 11/18/69 LIAISON ENGRG PROJ ENGRG 11/18/69 11/19/69

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LE0280

EO NO.: 1760

CDR 12-5-69 HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 65

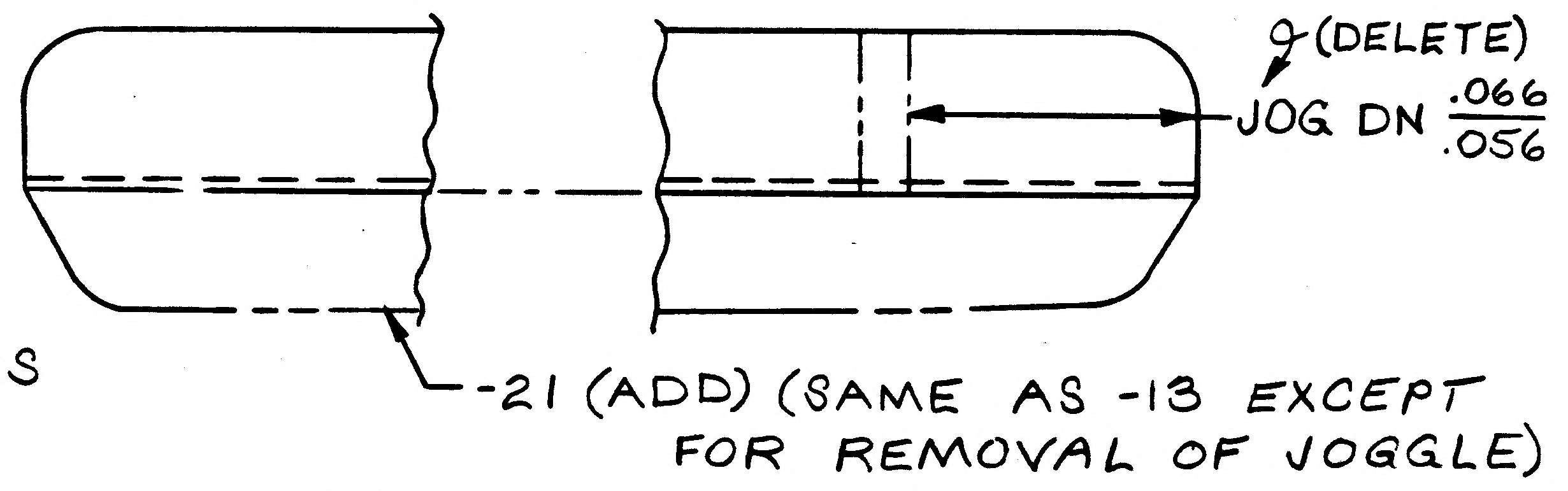
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

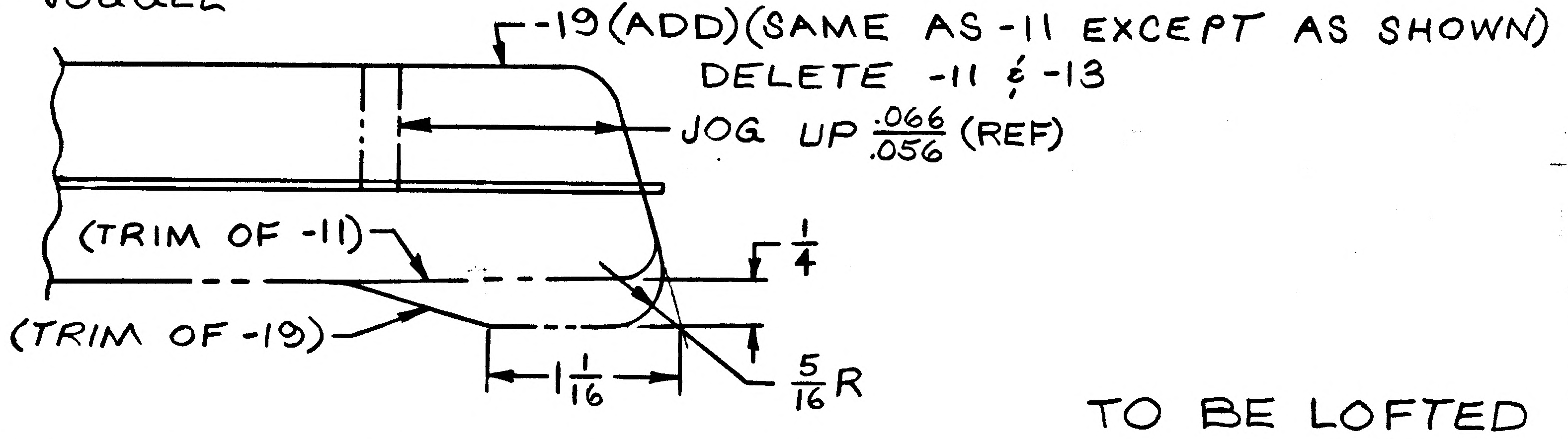
ENGINEERING ORDER

DWG. NO. LDW280-18770		EO NO. A3
CONTROL INFO NO. LM-2-5919		

IN FLD/DWG, B/M & MOD/BLK
DELETE: -11 & -13
ADD: -19 & -21
-19 REPLACES -11 AND IS IDENTICAL EXCEPT AS SHOWN BELOW.
-21 REPLACES -13 AND IS IDENTICAL EXCEPT FOR REMOVAL OF JOGGLE



(DELETE)
JOG DN $\frac{.066}{.056}$
-21 (ADD) (SAME AS -13 EXCEPT FOR REMOVAL OF JOGGLE)



-19 (ADD) (SAME AS -11 EXCEPT AS SHOWN)
DELETE -11 & -13
JOG UP $\frac{.066}{.056}$ (REF)
(TRIM OF -11)
(TRIM OF -19)
$\frac{1}{4}$
$1\frac{1}{16}$
$\frac{5}{16}$R

TO BE LOFTED

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 (2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
JOGGLE NOT REQUIRED AND PROVIDE EDGE DISTANCE FOR FASTENERS ON ASSY	IN FLD/DWG, B/M & MOD/BLK ADDED -19 & -21 REPLACING -11 & -13	R 2/4/70

MODEL	EFFECTIVITY E ~~PROCURING ACTIVITY NO.~~ I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU LM-14 (44)	
		LTA-11 (23)	
LM	LFM 507	LTA-3DR/1 (460) LTA-5/R (159)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	BJT			DSR	KC	AHG	BJT	
✓			✓	DATE	2-2-70			2/2/70	1/29/70	1/29/70	2-2-70	1/29/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	INTERCOSTAL~D/S~FWD LWR DK MOD EQUIP STOWAGE TRUSS SPT	LDW280-18770	A3

ISSUED BY LIAISON J. MALONEY 1/28/70 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

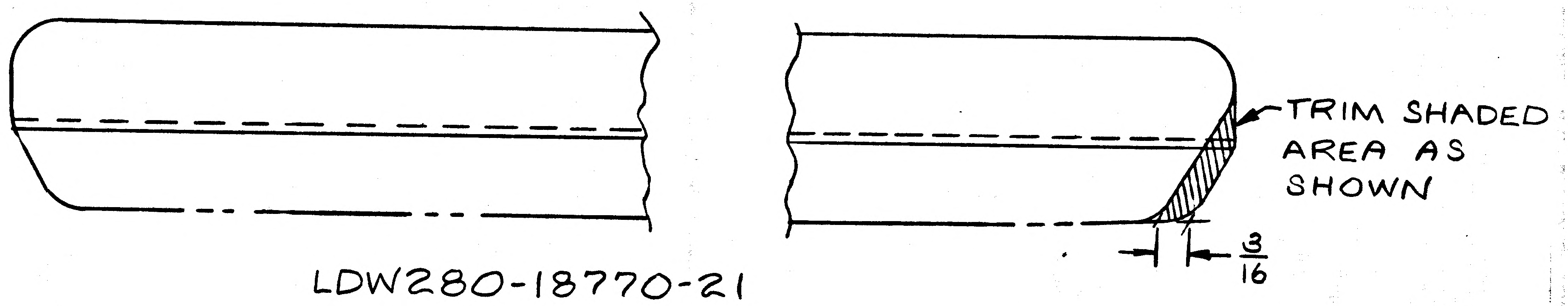
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18770		EO NO. A4
CONTROL INFO NO.	LM-2-5963		



LDW280-18770-21

IN FLD/DWG TRIM -21 AS SHOWN

FOR REWORK OF BARE SURFACE BRUSH ALODINE PER LSP-14-9010

TO BE LOFTED

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890

REASON FOR EO
ELIMINATE INTERFERENCE WITH LOWER CAPSTRIP

DESCRIPTION OF EO
TRIMMED FLANGE OF -21

R (2) GAEC EO RELEASE SRB 2-19-70 JK 2/17/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40) THRU	
		LM-14 (44) LTA-11 (23)	
		LTA-3DR/1 (460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY					KC		
DATE	2/13/70 VDI			2/11/70	2/9/70	2.9.70	2/13/70
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

2/9/70 ~~GOVT~~

PRIORITY C

DRAWING TITLE: INTERCOSTAL ~ D/S ~ FWD LWR DECK ~ MOD. EQUIP. STOWAGE ~ SPRT

DRAWING NO. LDW280-18770 EO NO. A4

ISSUED BY LIAISON J. MALONEY 2/8/70 x3604 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18772

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11 (23)	2 EA
↕	↕	LTA-3 DR/1 (46c)	2 EA
↕	↕	LM-14 (44)	2 EA
↕	↕	LM-13 (43)	2 EA
↕	↕	LM-12 (42)	2 EA
↕	↕	LM-11 (41)	2 EA
LM	LDW280-60587	LM-10 (40)	2 EA
PART NO. LDW280-18772-15, -17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11 (23)	1 EA
↕	↕	LTA-3 DR/1 (46c)	1 EA
↕	↕	LM-14 (44)	1 EA
↕	↕	LM-13 (43)	1 EA
↕	↕	LM-12 (42)	1 EA
↕	↕	LM-11 (41)	1 EA
LM	LDW280-60587	LM-10 (40)	1 EA
PART NO. LDW280-18772-11; -13; -16; -18, -19		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO		
LAST DASH NO. USED	-19	PRIM NO. 207	JK(001) ME-16	9/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3890, PKG 78

CONTRACT NO. NAS-9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. VICINANZA 9/18/69		
LAYOUT BY	D. SHAPIRO 9/18/69		
CHECKED BY	9-19-69		
GP LEADER	9-18-69		
VEH DES INT			
STRUCTURE	N.M. 9/18/69	PROJ ENGR	9/19/69
STRUCTURE	9/17/69	REL GROUP	9/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-UPPER DECK-HELIUM
DISTR-FUEL-OX-H_2O & GLYCOL LINES

SIZE	CODE IDENT NO.	
B	26512	LDW280-18772
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9-12-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18772-19	E	BRACKET	AL ALLOY SH.	QQ-A-250/12	7075	.032 x 4 x 5	T6	88	
								-18		CLIP				.032 x 2 x 3			
								-17		CLIP				.032 x 2 x 3			
								-16		CLIP				.032 x 2 x 5			
								-15		CLIP				.032 x 2 x 5			
								-13		BRACKET				.040 x 3 x 12			
								LDW280-18772-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040 x 3 x 10	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						38	ANODIZE	LPC-14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18772

SCALE NONE

SHEET 2.00

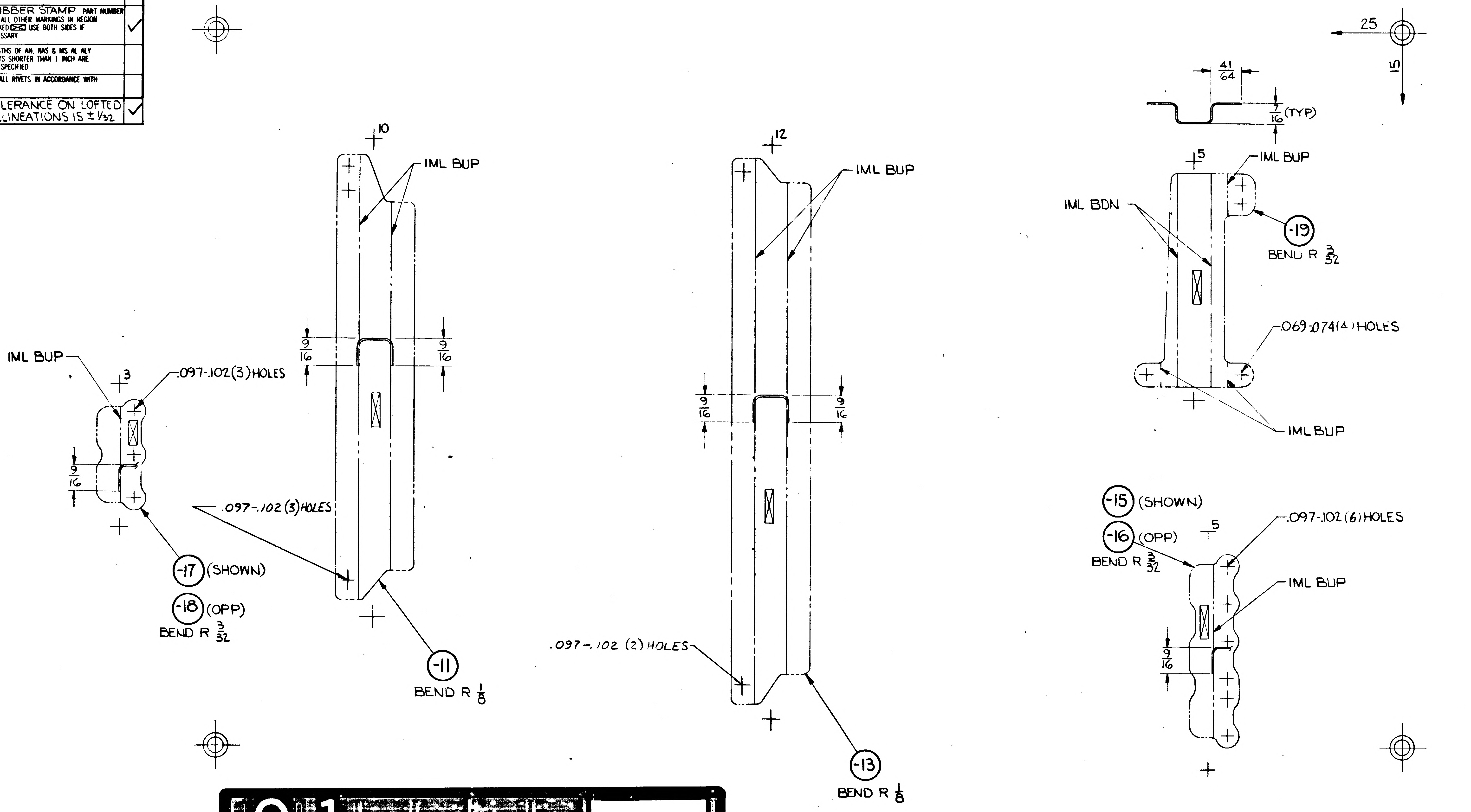
ENG 77.2 7-65

01

NAS 9-1100

TRAM O.K.
T.. 9-18-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


25
15
41/64
7/16 (TYP)
10
IML BUP
9/16
9/16
.097-.102 (3) HOLES
-11
BEND R 1/8
12
IML BUP
9/16
9/16
.097-.102 (2) HOLES
-13
BEND R 1/8
5
IML BUP
IML BDN
-19
BEND R 3/32
.069-.074 (4) HOLES
IML BUP
IML BUP
3
.097-.102 (3) HOLES
9/16
-17 (SHOWN)
-18 (OPP)
BEND R 3/32
-15 (SHOWN)
-16 (OPP)
BEND R 3/32
5
.097-.102 (6) HOLES
IML BUP
9/16

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18772
SCALE		SHEET 3-00

FOR PHOTO REPRODUCTION

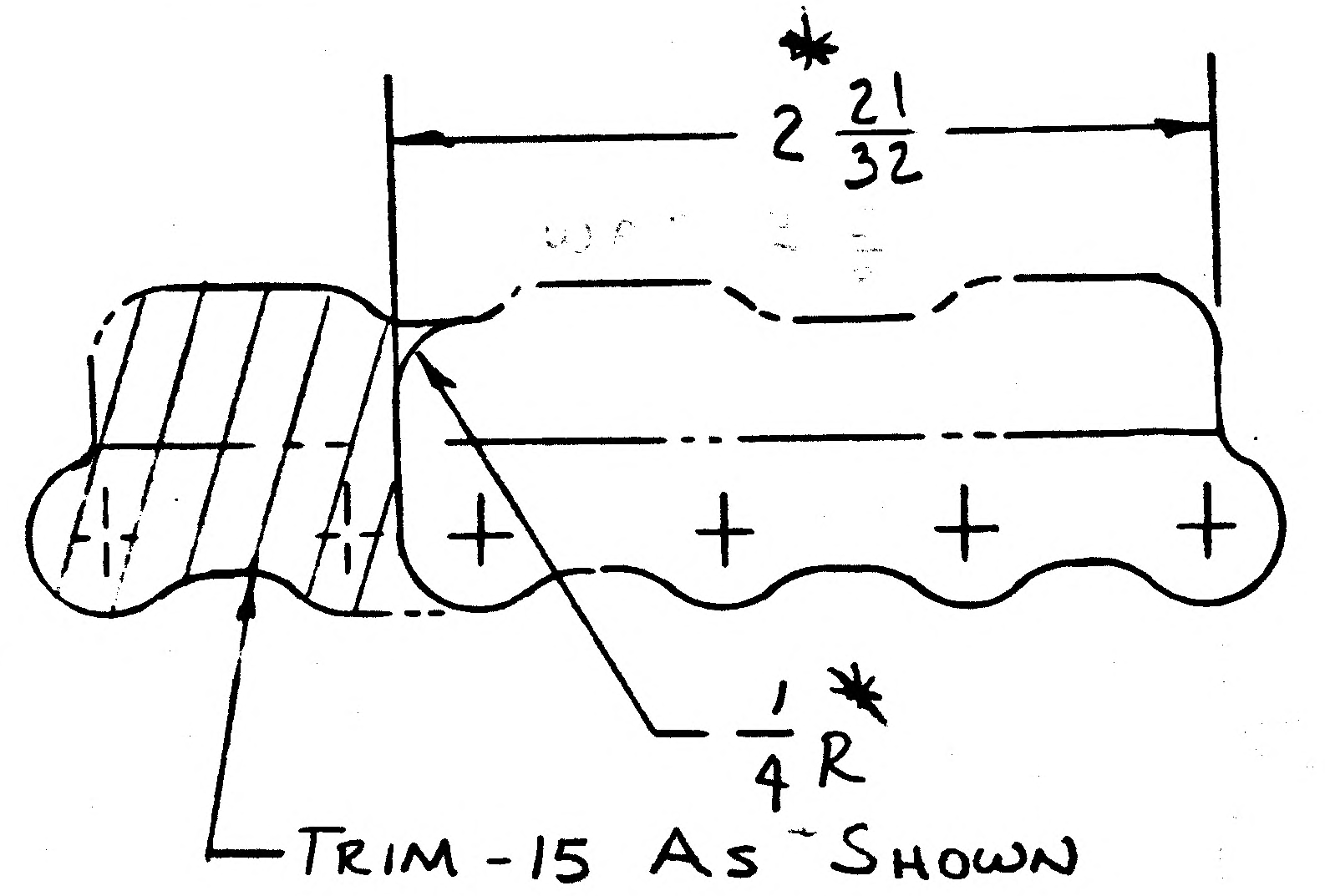
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18772
EO NO. A1
CONTROL INFO NO. LDW280B9207

IN F/D, B/M & MOD BLK
REMOVE -16 & -19

IN MOD BLK FOR -15
N/A LDW280-60587 (2) REQD S/B (4) REQD



TRIM -15 AS SHOWN IN SHADED AREA

* LOFTING INFO ONLY.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PK 78

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REROUTING OF H_2O LINE.	IN F/D TRIMMED -15 IN F/D, B/M & MOD BLK REMOVED -16 & -17 IN MOD BLK FOR -15 QTY (4) REQD WAS (2) REQD	(5) JK 10/30/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA3DR/1 (460)	
LM		LTA 11 (23)	
LM		LM 10 (40) THRU 14 (44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	-16 -19

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	10/27/69			10-28-69	10/28/69		10/29/69	10/29/69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S - UP DK He, FUEL, OX LINES	LDW280-18772	A1

CDR 103069
ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

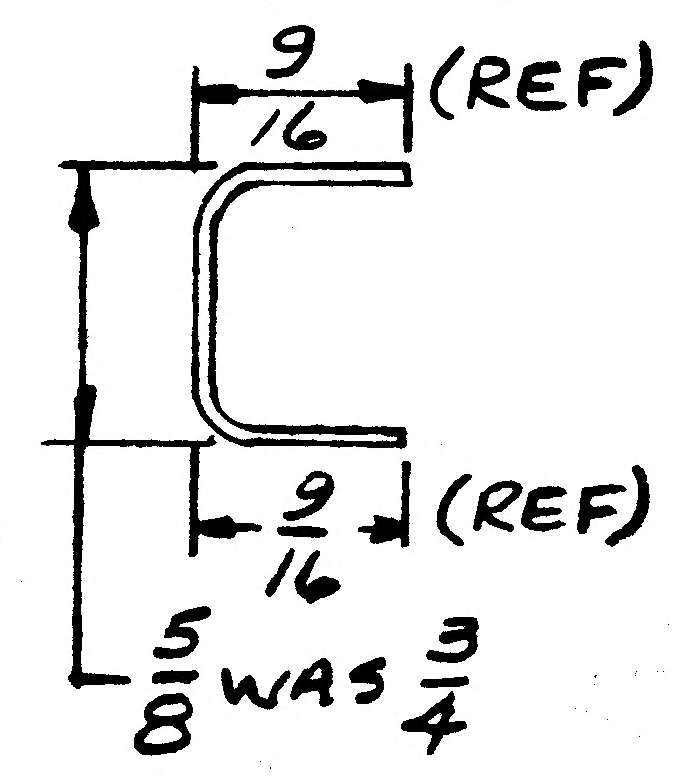
DWG. NO. LDW280-18772

EO NO. A2

CONTROL INFO NO. LM-2-5838

IN FLD, B/M & M/B

CREATE: LDW280-18772-21 IDENTICAL TO LDW280-18772-11 EXCEPT AS NOTED
LDW280-18772-23 IDENTICAL TO LDW280-18772-13 EXCEPT AS NOTED



REMOVE LDW280-18772-11 & -13

(TYP FOR-21 & -23)

N/A LDW280-60587

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG #02

REASON FOR EO: TO PROVIDE CLEARANCE FOR FLUID LINES.

DESCRIPTION OF EO: ADDED -21 & -23, REMOVED -11 & -13

R GAEC EO RELEASE (2)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	THRU
		LM-14(44)	LTA-3DR/1(44)
		LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-11 -13
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	PBT				K.S.		PBT	
DATE	1-12-70			1-9-70	1/7/70	1-7-70	1-14-70	1/13/70
1-7-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET D/S-UPPER DECK-HELIUM-DISTR-FUEL-OX-H2O & GLYCOL LINES	LDW280-18772	A2

ISSUED BY V.P.E. S. GRECO x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO 1846
CONTROL INFO NO. LDW 280 B 9970

FOR DWGS LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11 (23) EFF. FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-17998-23	E7	SEE DWG.	LDW280-60587
✓ LDW280-17989-11	A8	↑	↑
✓ LDW280-17985-11	B4		
✓ LDW280-17984-13	B5		
✓ LDW280-18718-23	A4		
✓ LDW280-18719-3,-4	A1		
✓ LDW280-18772-15,-17,-18,-21,-23	A3	↓	↓
LDW280-18774-13,-15,-19,-21	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	RBF			DR				
DATE	2-18-70			2/12/70	2/16/70		2/16/70	2/18/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1846

021970
ISSUED BY A. GROSS / D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-18773

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-3 DR/1 (46)	1 EA
		LTA-11 (23)	
		LM-14 (44)	
		THRU	
LM	LDW280-60587	LM-10 (40)	1 EA

PART NO. LDW280-18773-11, -13, -15, -17, -18, & -19

GAEC SCH NO.

WORK PKG FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED ~

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 JK (001) ME-16 9/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 CCA2205

ECP A120 PKG 78

ENG 77.1 12-65

CONTRACT NO. NAS-9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY 9-16-69	J. CLARK 9-17-69		
LAYOUT BY	G. CHAN Don Ragas 9-19-69		
CHECKED BY	9-19-69		
GR LEADER	9-18-69		
VEH DSGN INT	9-19-69		
STRUCT	N.M. 9/19/69	PROJ ENGR	9/19/69
STRUCT	WJH 9/19/69	REL GROUP	9/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FORMER
DESCENT STAGE-UPPER DECK-HELIUM
DISTR-FUEL-OX-H_2O AND GLYCOL LINES

SIZE B

CODE IDENT NO. 26512

LDW280-18773

SCALE NONE

SHEET 1.00 OF 3

CDR 9-17-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18773-19	E	FORMER	AL ALLOY SH	QQ-A-250/12	7075	.040X4X12	T6	88	
		-18	E	FORMER	AL ALLOY SH	QQ-A-250/12	7075	.063X3X12	T6	88	
		-17	E	FORMER	AL ALLOY SH	QQ-A-250/12	7075	.063X3X12	T6	88	
		-15	E	FORMER	AL ALLOY SH	QQ-A 250/12	7075	.071X4X11	T6	88	
		-13	E	FORMER	AL ALLOY SH	QQ-A 250/12	7075	.036X4X11	T6	88	
		LDW280-18773-11	E	FORMER	AL ALLOY SH	QQ-A-250/12	7075	.063X4X11	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP-14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18773

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

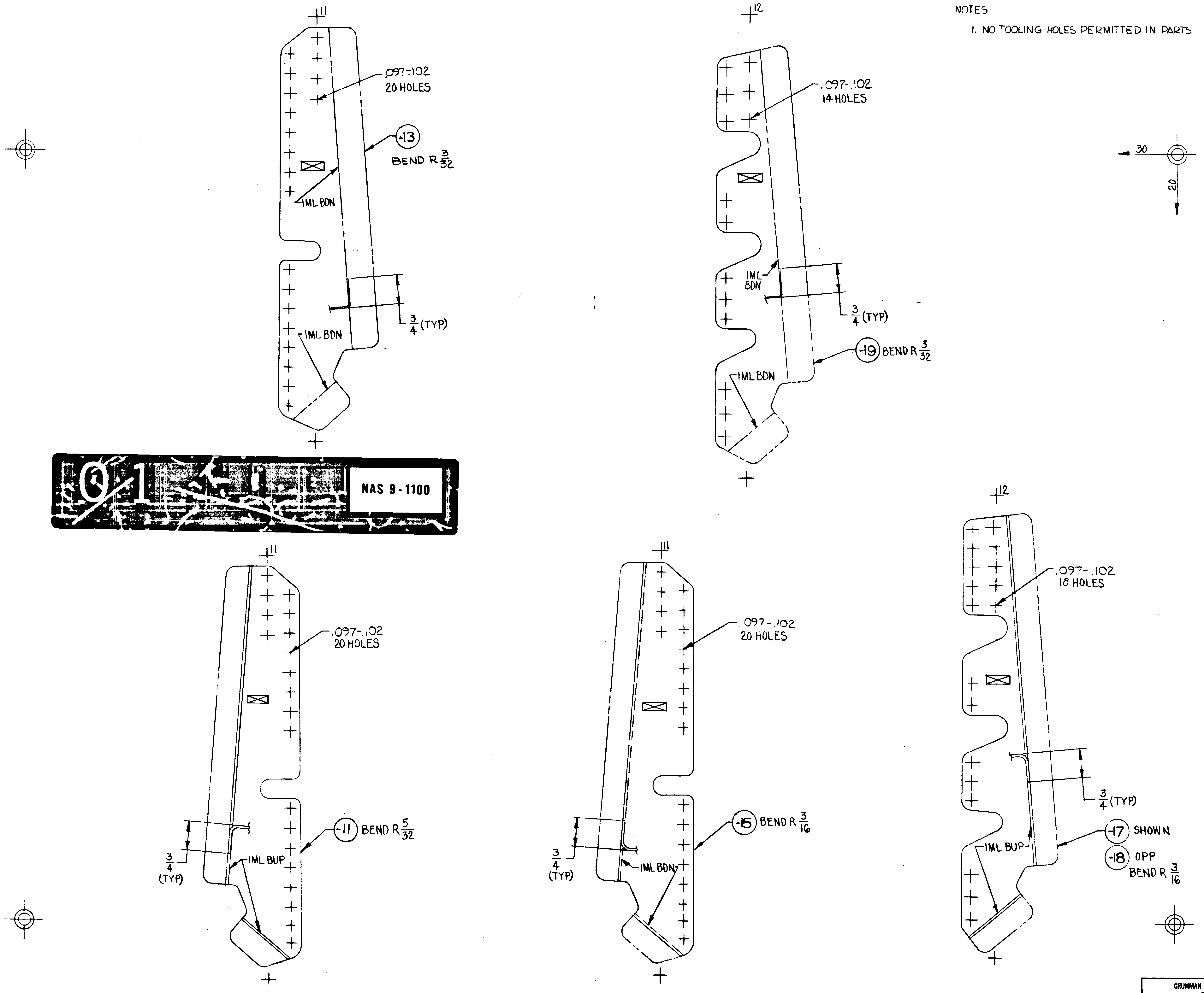
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS ± 1/32	✓

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
A
11
.097-.102
20 HOLES
-13
BEND R 3/32
IML BDN
3/4 (TYP)
IML BDN
12
.097-.102
14 HOLES
IML BDN
3/4 (TYP)
-19
BEND R 3/32
IML BDN
30
20
12
.097-.102
18 HOLES
3/4 (TYP)
-17 SHOWN
-18 OPP
BEND R 3/16
IML BUP
11
.097-.102
20 HOLES
-11
BEND R 5/32
IML BUP
3/4 (TYP)
11
.097-.102
20 HOLES
-15
BEND R 3/16
IML BDN
3/4 (TYP)

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18773
SCALE FULL		SHEET 3.00

ENG 73.5 REV 3-67

FOR PHOTO REPRODUCTION

K2

LDW280-18773

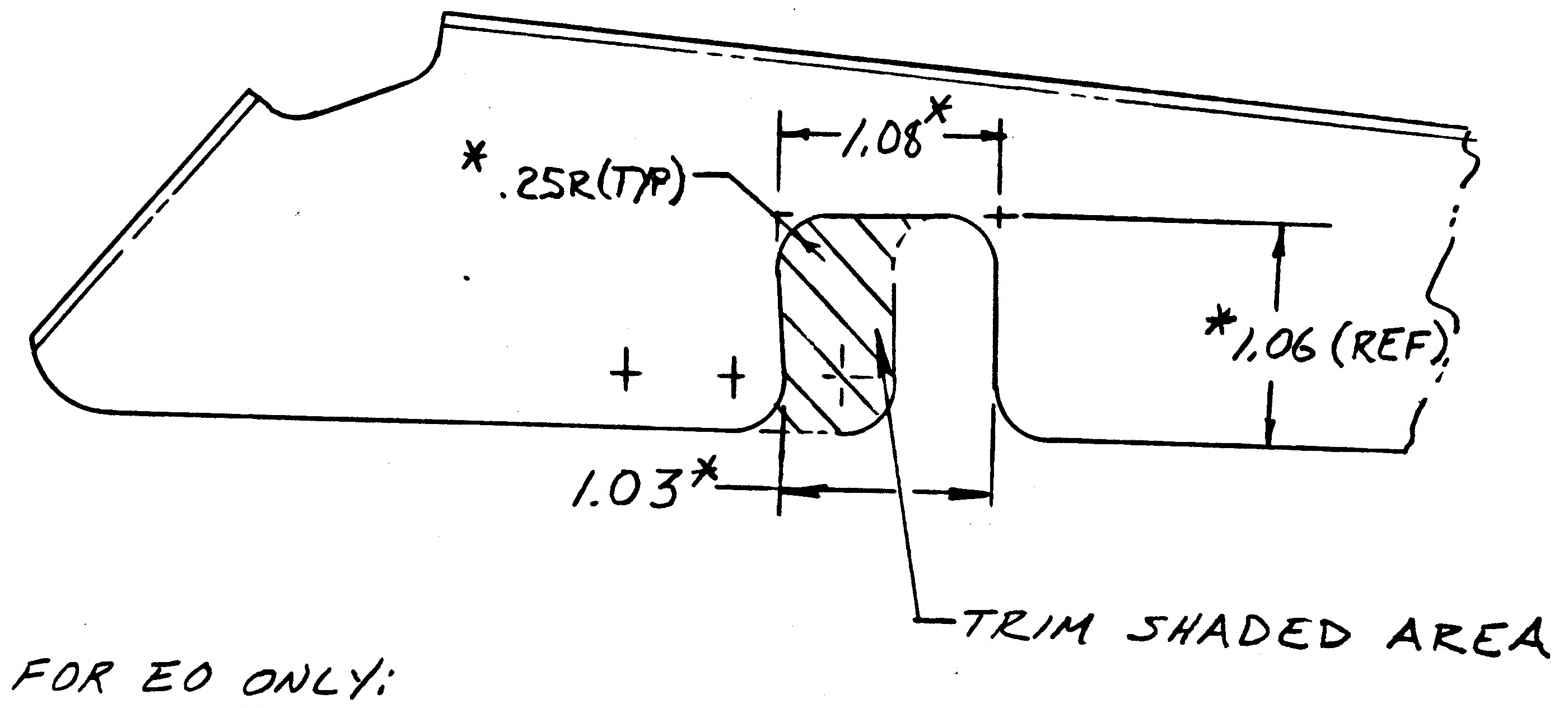
LDW280-18773

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18773
EO NO. A1
CONTROL INFO NO. LDW280B9208

TRIM -11, -13 & -15 AS SHOWN:



*- DIMENSIONS FOR EO ONLY:

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG 78 SHT 6

REASON FOR EO: REROUTING OF H_2O LINE ON FWD UPPER DECK

DESCRIPTION OF EO: TRIMMED -11, -13 & -15

GAEC EO RELEASE: JK 10/29/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40) THRU 14 (44)	
LM		LTA 3DR/1	(460)
LM		LTA 11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY							
✓		✓		DATE	10/27/69			10-27-69	10/28/69		10/28/69	10/29/69
					VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: FORMER D/S - UP. DK He, FUEL Ox & GLYCOL LINES
DRAWING NO.: LDW280-18773
EO NO.: A1

CDR 103069
ISSUED BY DON RAGAS x86046 SECTION VD1 GROUP NO. 280 PL 25

01 NAS 9-1100

LDW280-18774

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-3DR/1(460)	2
		LTA-11 (23)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60587	LM-10(40)	2

PART NO. LDW280-18774-19 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-3DR/1(460)	1EA
		LTA-11(23)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60587	LM-10(40)	1EA

PART NO. LDW280-18774-11,13, -15 & -17 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PACKAGE FUNCTION NO 110 (3)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED —

LAST DASH NO. USED -19

GRUMMAN REL INFO LR

PRIM NO. 207

JK(001) ME-16 9/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890 PKG 78
PG 5

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE I

DRAWN BY L.DIXON

LAYOUT BY KRAVITZ & SHAPIRO

CHECKED BY 9-19-69

GR LEADER 9-19-69

VEH DES INT 9/19/69

STRUCTURE

STRUCTURE W/M 9/19/69

PROJ ENGR 9/19/69

REL GROUP March 9/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE-UPPER DECK-HE DISTR-
FUEL-OXH_2O & GLYCOL LINES

SIZE B | CODE IDENT NO. 26512 | LDW280-18774

SCALE NONE | SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR 9-17-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18774-19	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.032X2X2	T6	88	
		↑ -17	↑	FORMER	↑	↑	↑	.036X4X15	↑	↑	
		-15		BRACKET				.032X3X3			
		↓ -13	↓	BRACKET	↓	↓	↓	.050X5X6	↓	↓	
		LDW280-18774-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.040X3X5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18774

SCALE NONE

SHEET 2.00

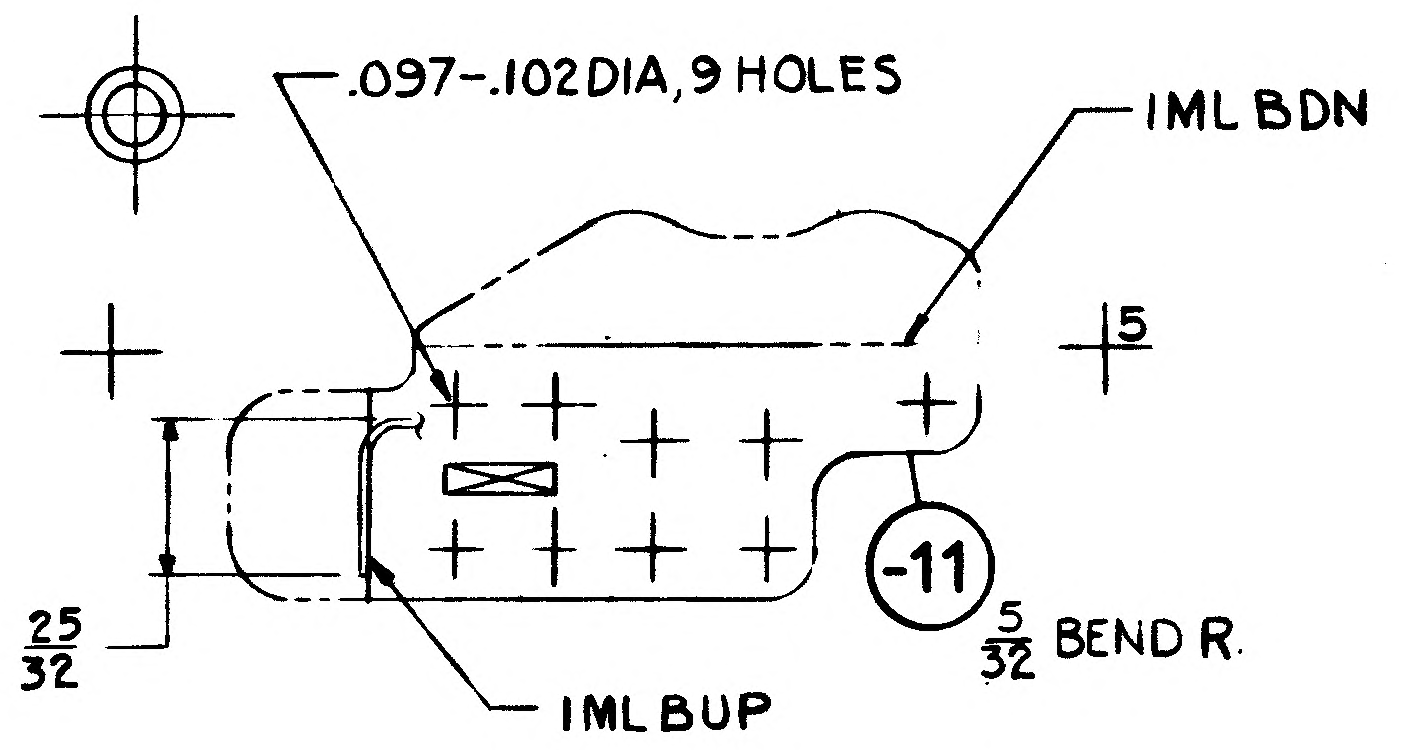
ENG 77.2 7-65

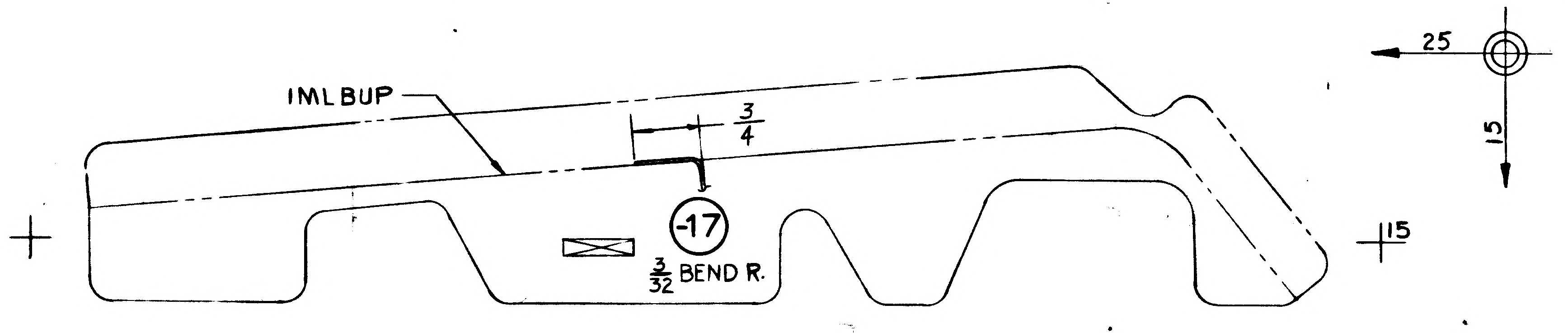
01

NAS 9-1100

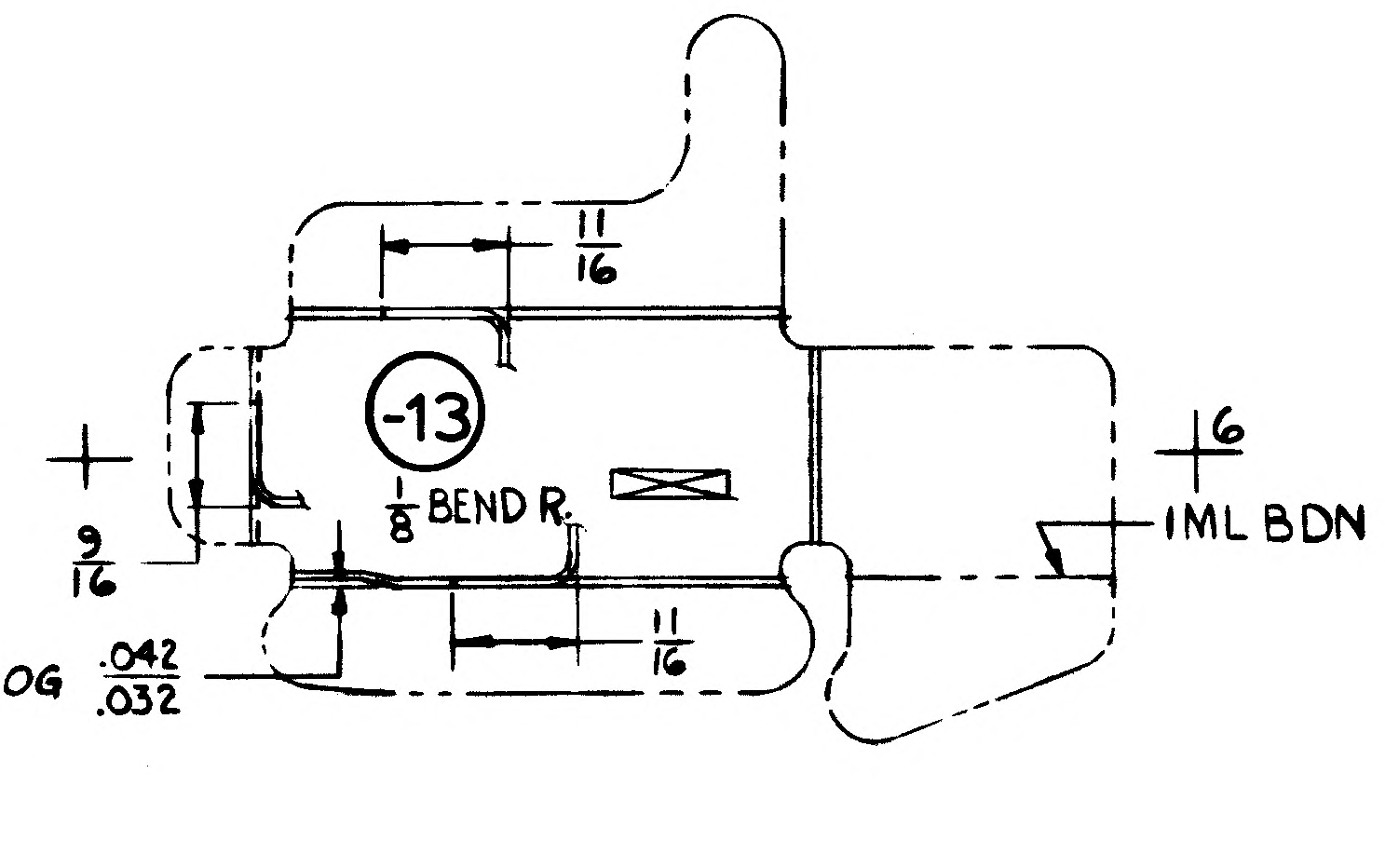
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

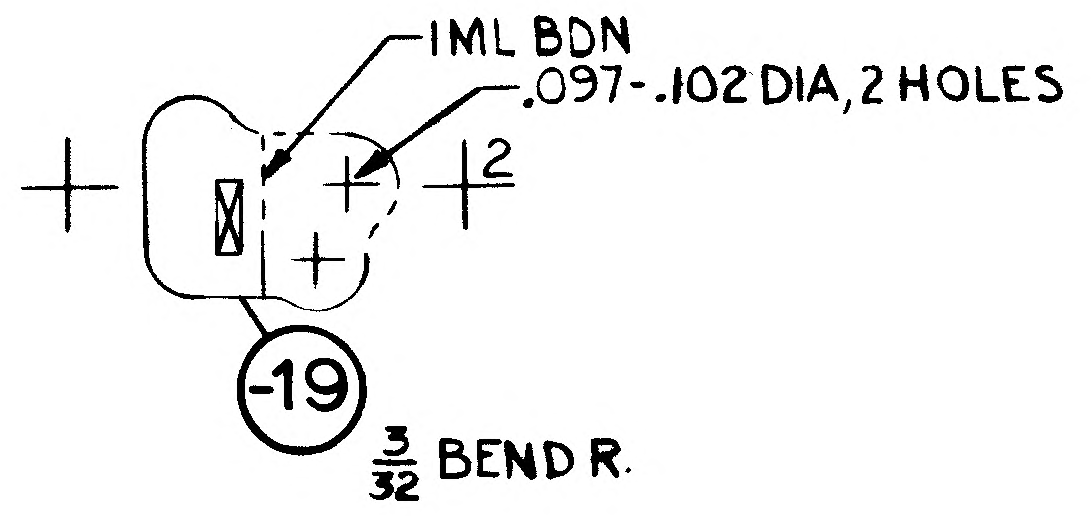
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

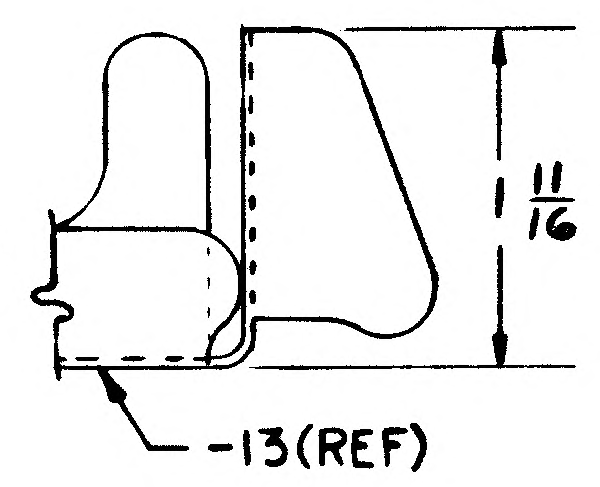

.097-.102 DIA, 9 HOLES
IML BDN
5
25/32
-11
5/32 BEND R.
IML BUP


IML BUP
3/4
-17
3/32 BEND R.
25
15
15

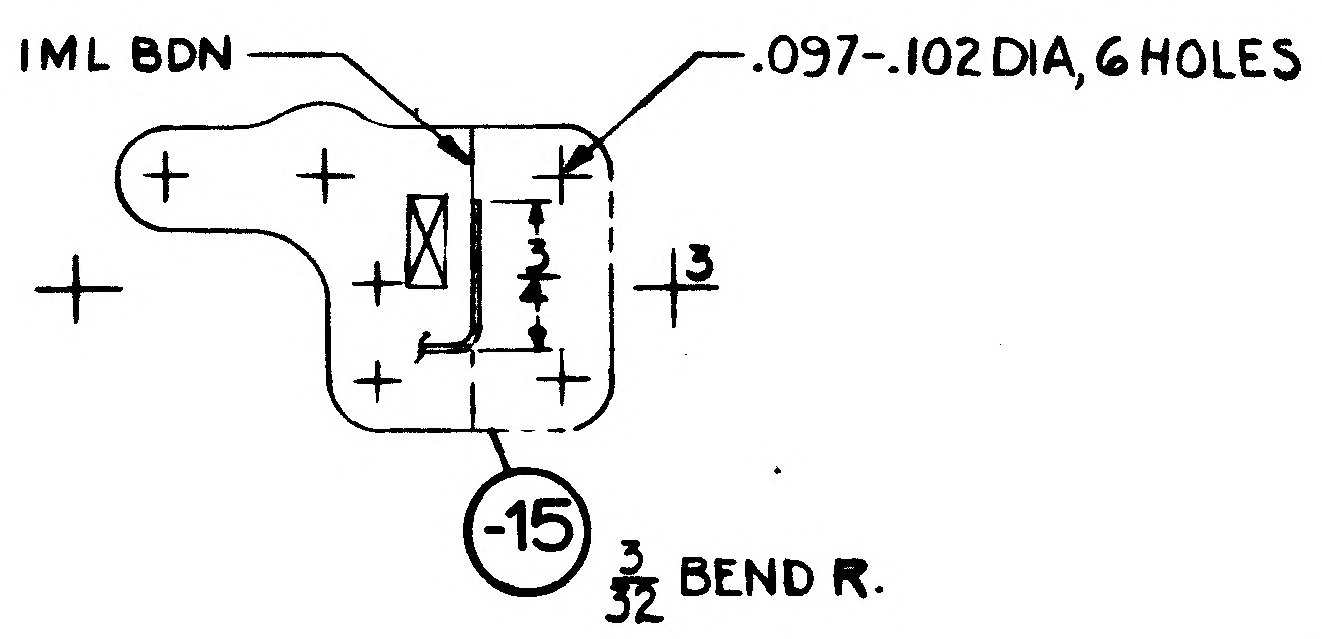
NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS


11/16
-13
1/8 BEND R.
6
IML BDN
9/16
JOG .042/.032
11/16


IML BDN
.097-.102 DIA, 2 HOLES
2
-19
3/32 BEND R.



NAS 9-1100


IML BDN
.097-.102 DIA, 6 HOLES
3
3/4
-15
3/32 BEND R.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18774

SCALE FULL SHEET 3.00

FOR PHOTO REPRODUCTION

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

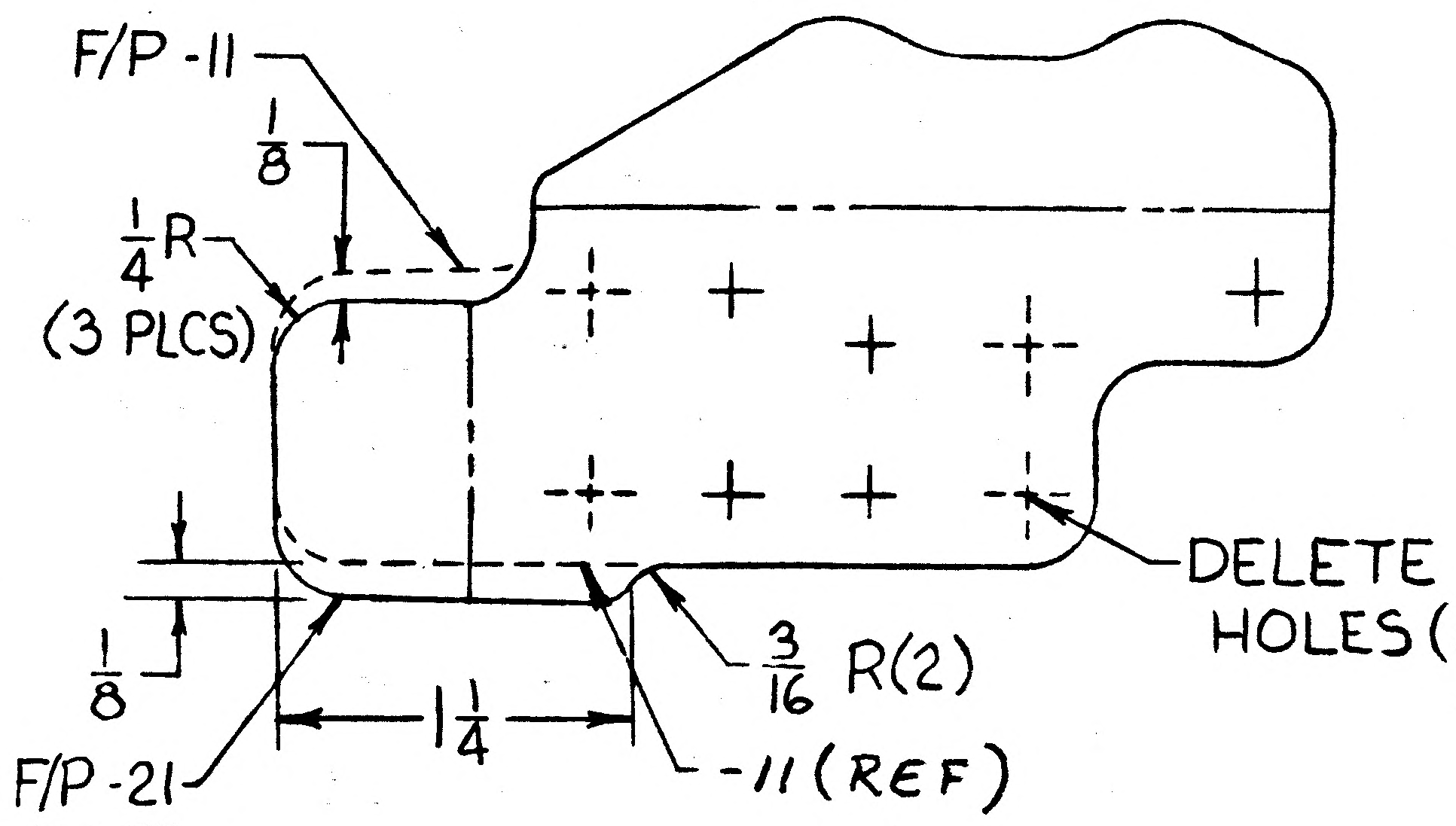
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18774		EO NO. A1
CONTROL INFO NO. LM-2-5799		

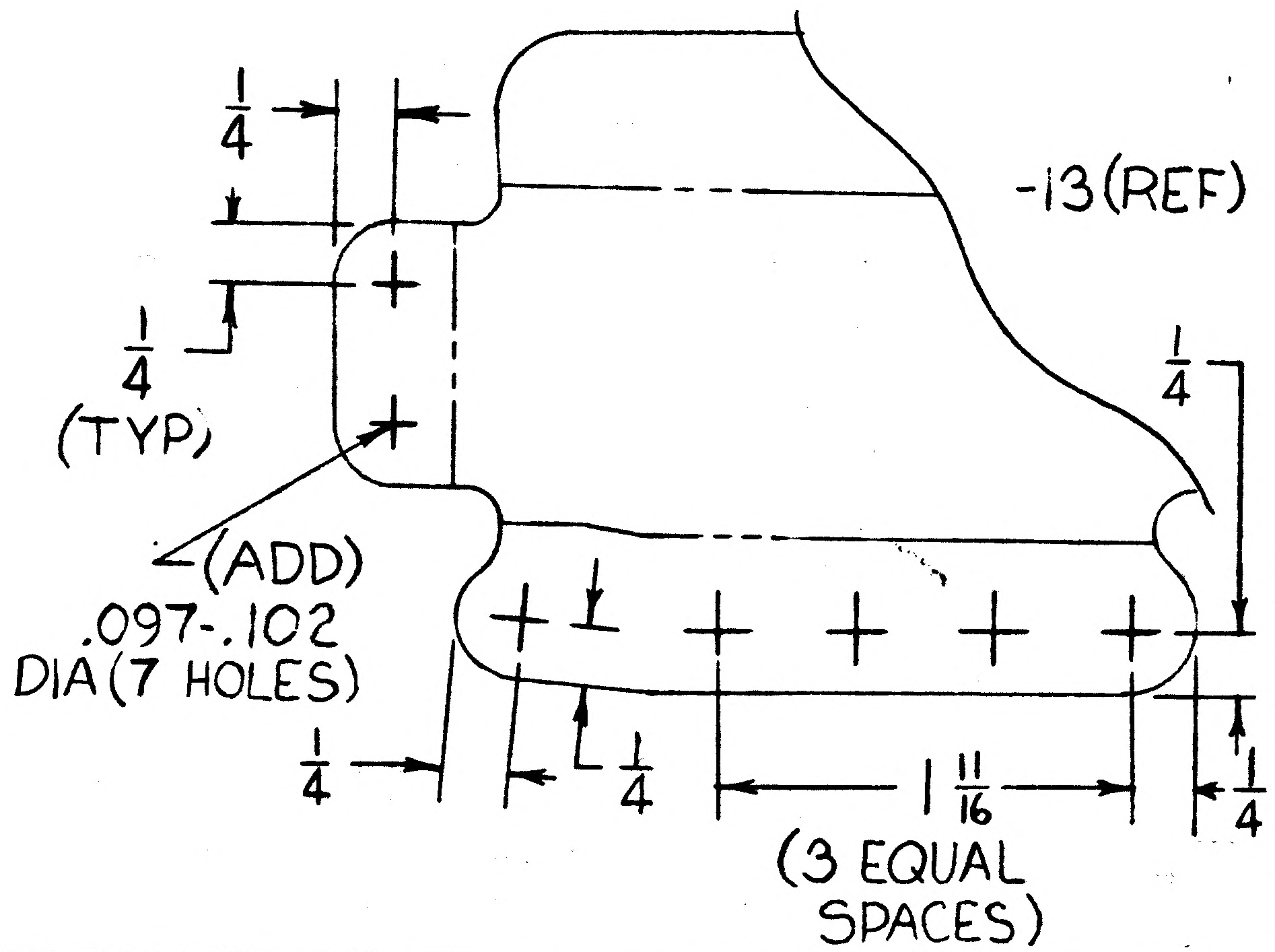
IN F/D. CREATE -21 IDENTICAL TO -11 EXCEPT DELETE FOUR HOLES, ADD TAB AND CHG F/P AS SHOWN. REPLACE -11 WITH -21. FOR -13, ADD SEVEN HOLES AS SHOWN.

NOTE: DO NOT ADD DIM. TO DWG.



F/P -11
1/8
1/4 R
(3 PLCS)
1/8
F/P -21
1 1/4
3/16 R(2)
-11 (REF)
DELETE HOLES(4)

LDW280-18774-21



1/4
1/4 (TYP)
(ADD) .097-.102 DIA (7 HOLES)
-13 (REF)
1/4
1/4
1/4
1 11/16 (3 EQUAL SPACES)
1/4

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 02

REASON FOR EO: PART DOES NOT PERMIT PROPER INSTL OF FSTNR.

DESCRIPTION OF EO: IN F/D, B/M MOD BCK ADDED -21 REMOVED -11, ON -13 ADDED CALLOUT DR .097-.102 (7 HOLES)

R EO RELEASE GAEC (2) JK 12/30/69

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3 DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	PST				KC		
✓	✓	-13	-11	DATE	12-23-69			12/23	12/19/69	12/19/69	12/23/69
				17 Dec 69		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C

DRAWING TITLE: BRACKET-D/S UPPER DECK He DISTR-FUEL-OX H_2O & GLYCOL LINES

DRAWING NO. LDW280-18774

EO NO. A1

ISSUED BY **LIAISON** J. STECEWYCZ X 3604 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1846
CONTROL INFO NO. LDW 280 B 9970

FOR DWGS LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11 (23) EFF. FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-17998-23	E7	SEE DWG.	LDW280-60587
✓ LDW280-17989-11	A8		
✓ LDW280-17985-11	B4		
✓ LDW280-17984-13	B5		
✓ LDW280-18718-23	A4		
✓ LDW280-18719-3,-4	A1		
✓ LDW280-18772-15,-17,-18,-21,-23	A3		
✓ LDW280-18774-13,-15,-19,-21	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460) UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: JK 2/18/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	2-18-70			2/13/70	2/16/70		2/16/70	2/18/70

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 1846

021970
ISSUED BY A. GROSS / D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

01 5

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18774 | EO NO. A3

CONTROL INFO NO. LDW 280 C 0469

IN MOD BLK FOR -21 ADD LTA-11 (23)

& LTA-3DR/1 (460) EFF.

N/A LDW280-60587

1 REQ'D PER VEHICLE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3890 PKG 78

REASON FOR EO: PART IS REQ'D FOR STATIC & MODAL SURVEY TESTS BUT IS NOT CRITICAL FOR DROP TESTS.

DESCRIPTION OF EO: IN MOD BLK FOR -21 ADDED LTA-11 (23) & LTA-3DR/1(460) EFF.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	
		LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	5-19-70			5/19/70	5/19/70		5/19/70	5/20/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY		DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET - D/S	UPPER DECK He DISTR-FUEL-OX H_2O & GLYCOL LINES	LDW280-18774	A3

5/19/70 ISSUED BY J. FAHNER / G. HANSMANN x87222 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18775

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-60587	LTA-11 (23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW 280-60587	LM-10 (40)	1 EA
PART NO. LDW280-18775-11,-12,-13, -15,-17,&-19		GAEC SCH NO.	

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207 K(001) ME-16 9/19/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 78

PG 5

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 9-17-69		
LAYOUT BY	D. SHAPIRO 7-21-69		
CHECKED BY	9-19-69		
GR LEADER	9-19-69		
VEH DES INT	9-19-69		
STRUCTURES		PROJ ENGR	9/19/69
STRUCTURES	W/H 9/19/69	REL GROUP	L. Marsh 9/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FORMER
DESCENT STAGE - UPPER DECK
HE DISTR-FUEL OX H_2O, GLYCOL LINES

SIZE B

CODE IDENT NO. 26512

LDW280-18775

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR-09-19-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18775-19	E	SUPPORT	AL ALY SH	QQ-A-250/12	7075	.032 x 3 x 4	T6	88	
		-17	↕	SUPPORT	↕	↕	↕	.032 x 3 x 4	↕	↕	
		-15	↕	SUPPORT	↕	↕	↕	.032 x 3 x 5	↕	↕	
		-13	↕	SUPPORT	↕	↕	↕	.032 x 3 x 5	↕	↕	
		-12	↕	FORMER	↕	↕	↕	.063 x 4 x 15	↕	↕	
		LDW280-18775-11	E	FORMER	AL ALY SH	QQ-A-250/12	7075	.063 x 4 x 15	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	ALHEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18775

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

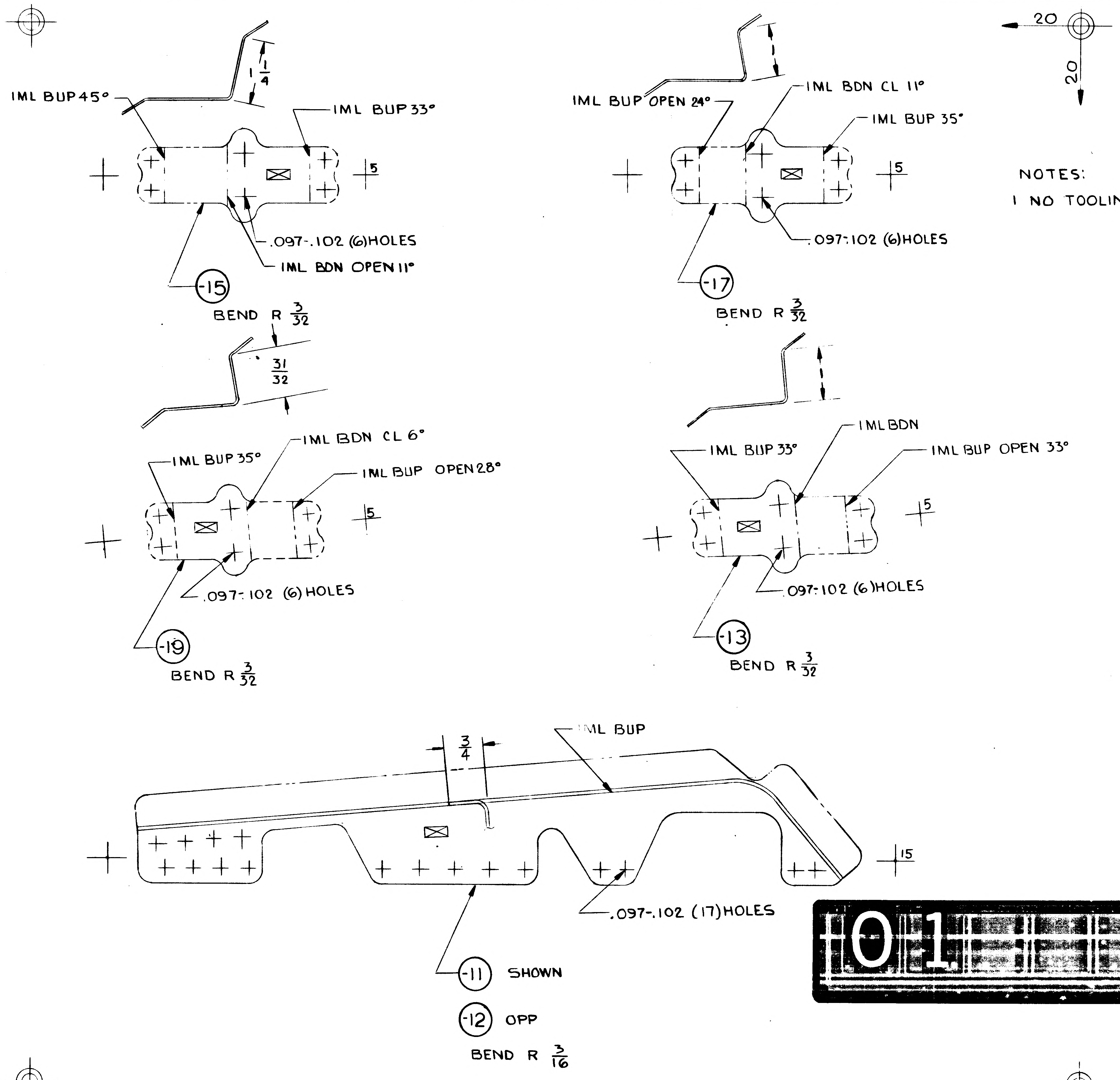
01

NAS 9-1100

LDW280-18775

Overlay 8 TRAN OK. [illegible] 7-16-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓



20
20
IML BUP 45°
1/4
IML BUP 33°
5
.097-.102 (6) HOLES
IML BDN OPEN 11°
-15
BEND R 3/32
IML BUP OPEN 24°
IML BDN CL 11°
IML BUP 35°
5
.097-.102 (6) HOLES
-17
BEND R 3/32
31/32
IML BUP 35°
IML BDN CL 6°
IML BUP OPEN 28°
5
.097-.102 (6) HOLES
-19
BEND R 3/32
IML BUP 33°
IML BDN
IML BUP OPEN 33°
5
.097-.102 (6) HOLES
-13
BEND R 3/32
3/4
IML BUP
15
.097-.102 (17) HOLES
-11 SHOWN
-12 OPP
BEND R 3/16

NOTES:

1 NO TOOLING HOLES PERMITTED IN PARTS

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18775
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

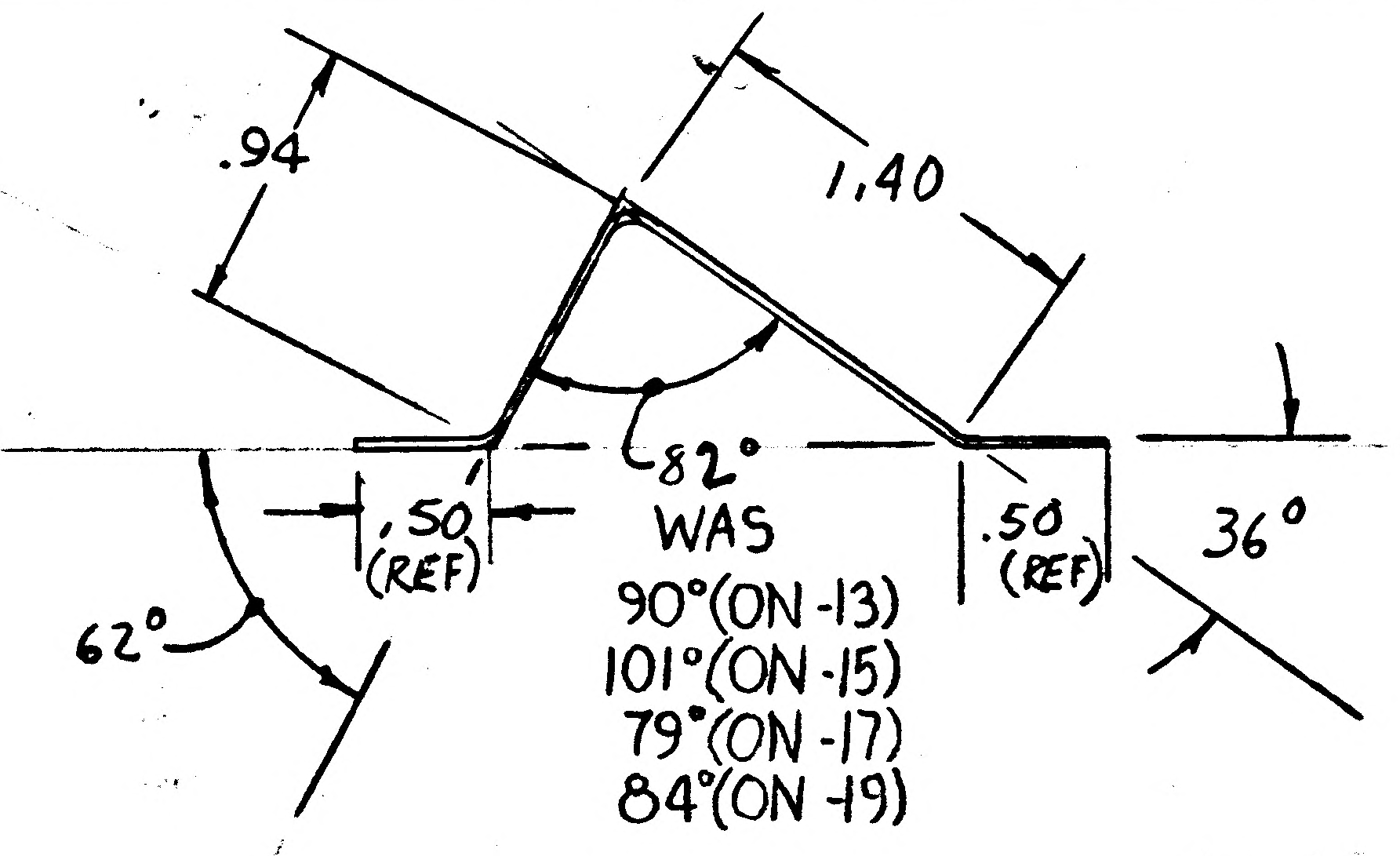
DWG. NO. LDW280-18775 | EO NO. A1

CONTROL INFO NO. LM 2-5803

IN F/D, B/M

ADD -21, 23, -25 & -27, (IDENT TO -13, 15, -17 & -19 RESPECTIVELY EXCEPT AS NOTED).

IN MOD BLK: -21, -23 -25 & -27 WAS -13, -15, -17 & -19 RESPECTIVELY QTY & N/A REMAIN THE SAME.



DIMS SHOWN TYP FOR -21, -23 -25 & -29

DIM SHOWN ARE FOR EO PURPOSES ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PK 02

REASON FOR EO: TO ELIMINATE TOL BUILDUP IN INSTL OF DET. PARTS

DESCRIPTION OF EO: IN F/D, B, M & MOD BLK ADDED -21, -23, -25 & -27 REM. -13, -15, -17 & -19

R EO RELEASE (2) GAEC JK 12-30-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	14(44)
LM		LTA11(23)	
		LTA3DR/1(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	PGT	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓ REVISE DWG	RECORD EO	REWORK	-13 15 17 19 SCRAP	DATE	12-23-69 VD1			12/23	KC 12/19/69	12-19-69	12/23/69	12/19/69 GOVT

PRIORITY: C

DRAWING TITLE: FORMER D/S-UP DK He DISTR-FUEL Ox, H2O LINES

DRAWING NO.: LDW280-18775

EO NO.: A1

ISSUED BY LIAISON DON RAGAS / J. MALONEY x3604 SECTION VD1 GROUP NO. 335 PL 2

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 1845
CONTROL INFO NO. LDW280B9, 71

FOR ALL DWG.S LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11(23) EFF. FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
LDW280-18775-21,-23,-25,-27	A2	SEE DWG.	LDW280-60587
LDW280-18776-11,-12,-13,-14,-17,-19	A2		
LDW280-18777-13,-17,-19,-21,-22	A1		
LDW280-18778-1,-11,-15	A2		
LDW280-18779-11,-15,-23,-31,-27,-29	A5		
LDW280-18920-15	A1		
LDW280-18981-11,-13,-15,-17	A2		
LDW280-18991-11,-13	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 78	(5)

REASON FOR EO
DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO
FOR DWG. & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE
JK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RST						
✓			✓	DATE	2-16-70			2/13/70	2/16/70		2/16/70	2/17/70
REVISE DWG	RECORD EO	REWORK	SCRAP		YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1845

021970
ISSUED BY A. GROSS/D. RAGAS 87222 SECTION Y.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

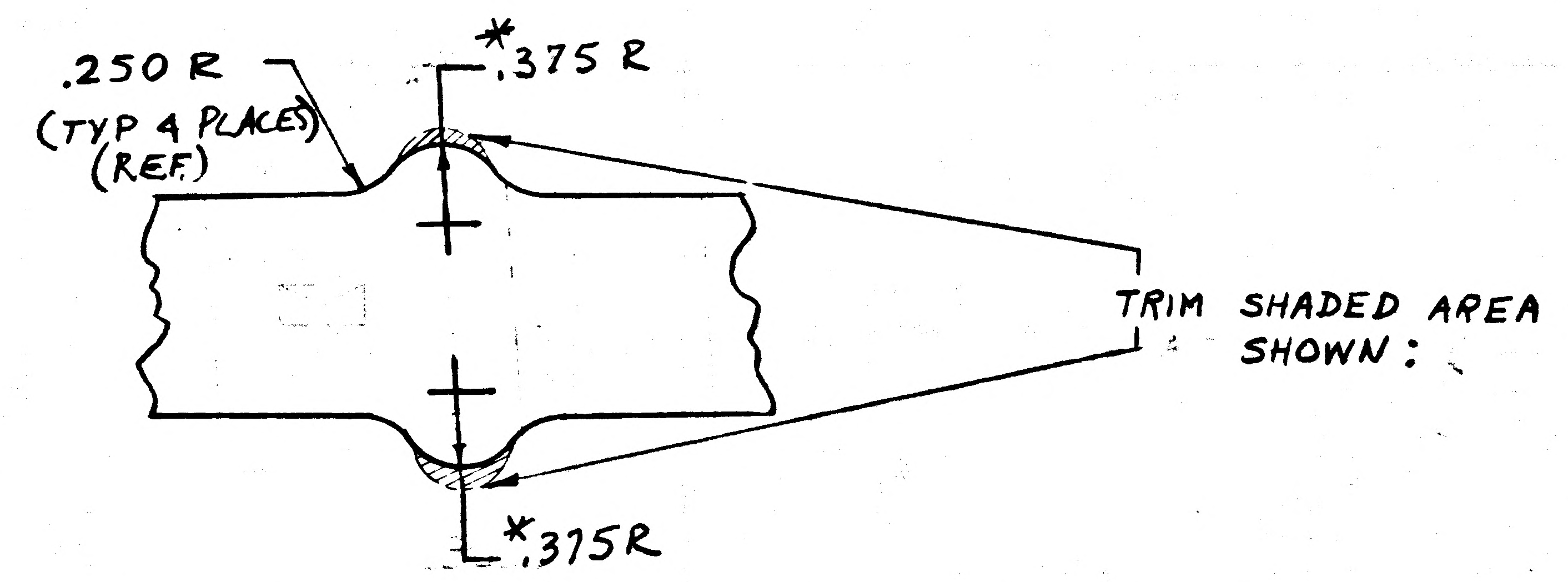
GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18775	EO NO. A3
CONTROL INFO NO. LDW280B9979	



TYP. TRIM FOR: -21, -23, -25, & -27 AS SHOWN:

* DIM. SHN. FOR E.O. PURPOSES ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG. 78	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTALLATION OF RECEPTACLE (GLYCLO)	TRIMMED -21, -23, -25, & -27	VK 2/19/70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	BST				NM			
DATE	2-16-70			2/13/70	2/16/70		2/17/70	2/19/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FORMER - D/S UPPER DECK HE DISTR.-FUEL-OX-H_2O, GLYCOL LINES	LDN280-18775	A3

021970

ISSUED BY A. GROSS / D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18776

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11 (23)	1EA
↑	↑	LTA-3DR/1 (460)	1 EA
		LM-14 (44)	1 EA
		LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60587	LM-10 (40)	1 EA
PART NO. LDW280-18776-12-14-15 -16-17 & -19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11 (23)	2 EA
↑	↑	LTA-3DR/1 (460)	2 EA
		LM-14 (44)	2 EA
		LM-13 (43)	2 EA
		LM-12 (42)	2 EA
↓	↓	LM-11 (41)	2 EA
LM	LDW280-60587	LM-10 (40)	2 EA
PART NO. LDW280-18776-11 & -13		GAEC SCH NO.	

WORK PKG FUNCTION NO.110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO ✱

PRIM NO. 207 VC(001) ME-16 9/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890 PKG 78

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY J.VICINANZA 9/19/69
LAYOUT BY D.SHAPIRO DON RAGAS 9-19-69
CHECKED BY J. Hicks 9-19-69
GR LEADER 9-19-69
VEH DES INT F. DeRegini 9-19-69
STRUCTURES N.M. 9-19-69
STRUCTURES 9/19/69

PROJ ENGR 9/19/69
REL GROUP 9/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FORMER
DESCENT STAGE UPPER DECK
HE DISTR - FUEL OX H_2O GLY COL LINES

SIZE B | CODE IDENT NO. 26512 | LDW280-18776

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR-09-17-69

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION.	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18776-19	E	CLIP	AL ALY SH	QQ-A250/12	7075	032x 2x5	T6	88	
								↑ -17	↑	CLIP	↑	↑	↑	.040x 2x2	↑	↑	
								'6		FORMER				.071X 3x15			
								-15		FORMER				.071X 3x15			
								-14		CLIP				.032x 2x5			
								-13		CLIP				.032x 2x5			
								↓ -12	↓	CLIP	↓	↓	↓	.032x 2x5	↓	↓	
								LDW280-18776-11	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.032x 2x5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18776

SCALE NONE

SHEET 2.0C

ENG 77.2 7-65

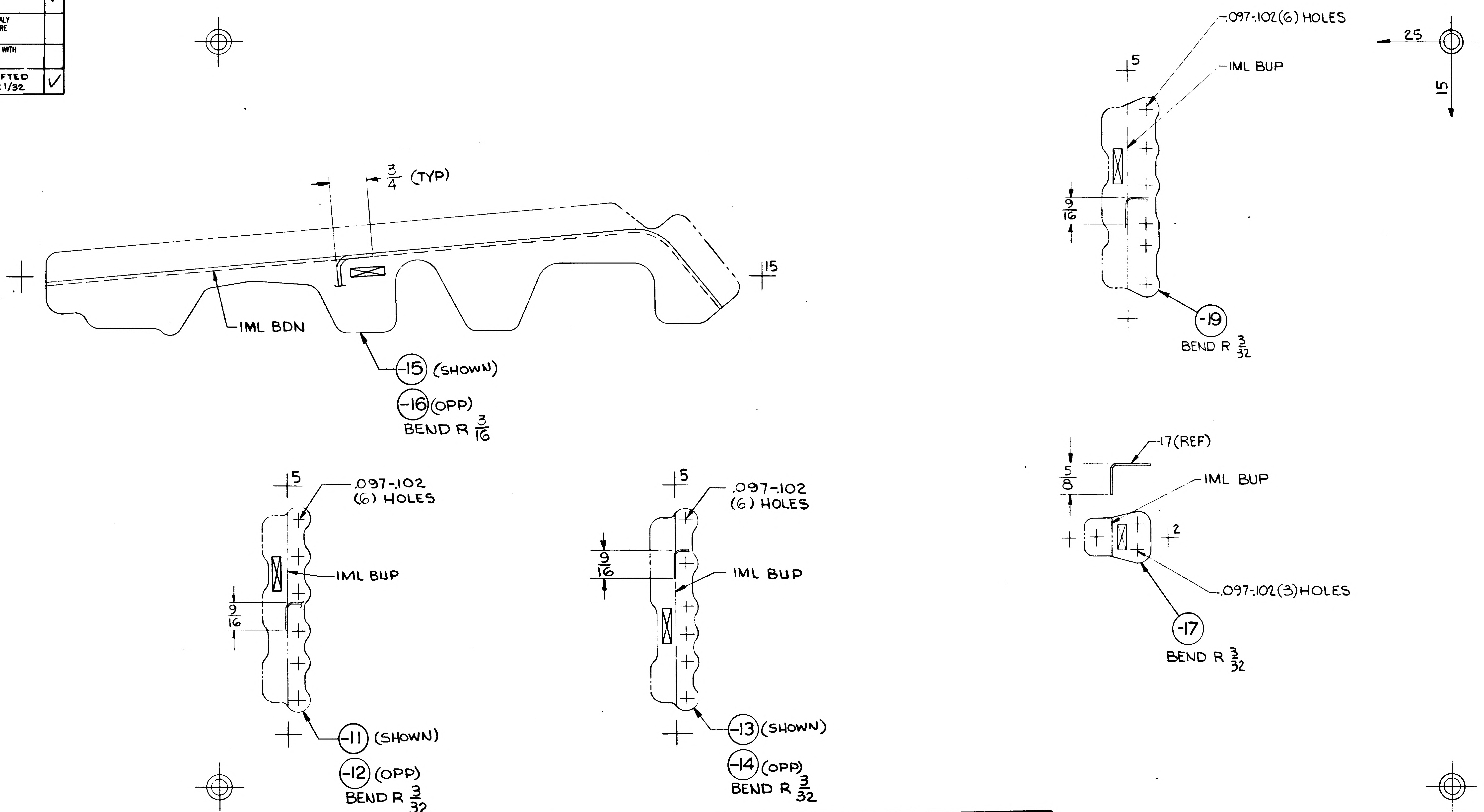
01

NAS 9-1100

LDW280-18776

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER ~~AND ALL OTHER MARKINGS IN REGION~~ MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



.097-.102(6) HOLES
IML BUP
25
15
5
9/16
-19
BEND R 3/32
3/4 (TYP)
15
IML BDN
-15 (SHOWN)
-16 (OPP)
BEND R 3/16
-17 (REF)
5/8
IML BUP
2
.097-.102(3) HOLES
-17
BEND R 3/32
5
.097-.102
(6) HOLES
IML BUP
9/16
-11 (SHOWN)
-12 (OPP)
BEND R 3/32
5
.097-.102
(6) HOLES
9/16
IML BUP
-13 (SHOWN)
-14 (OPP)
BEND R 3/32

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18776
SCALE		SHEET 3.00

FOR PHOTO REPRODUCTION

K2

LDW280-18776

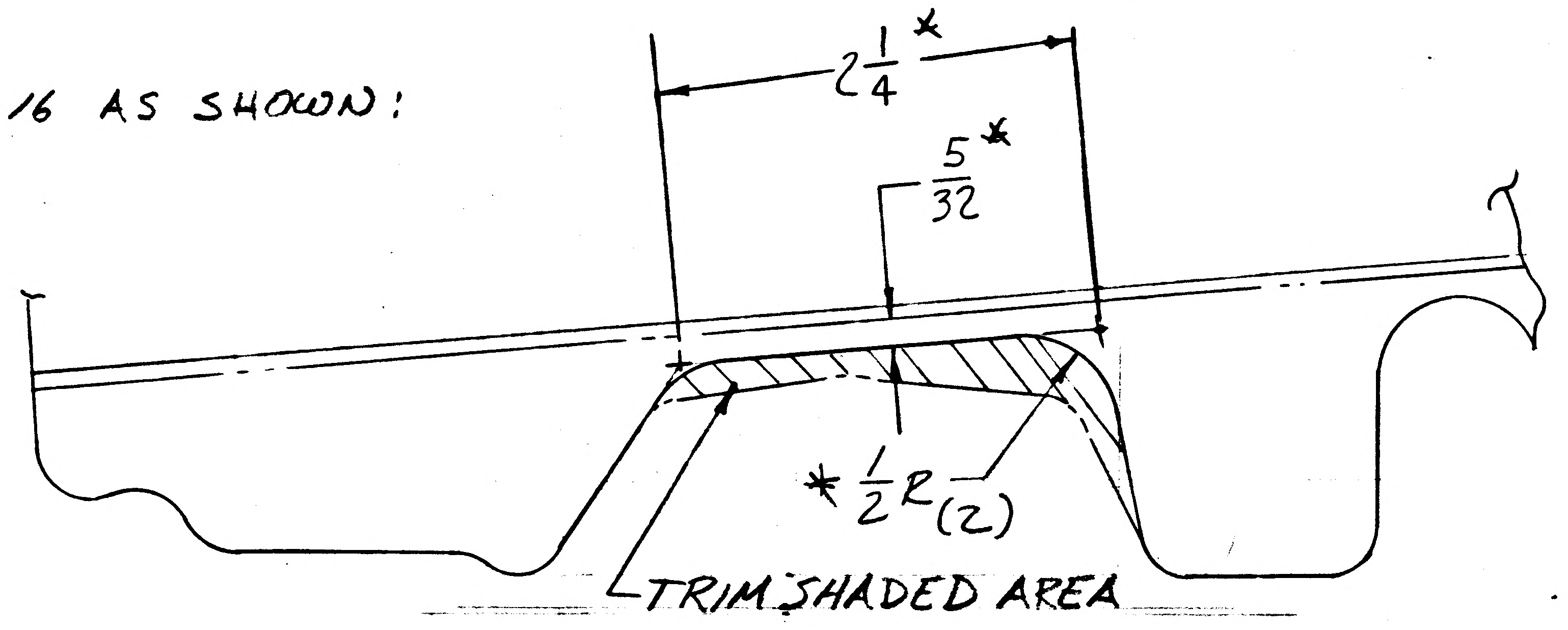
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG'ᴺ 'ERING ORDER

DWG. NO. LDW280 - 18776		EO NO. A1
CONTROL INFO NO. LDW280B 9209		

TRIM -15 & -16 AS SHOWN:



* LOFTING INFO ONLY

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 78 (5)

REASON FOR EO: TO PROVIDE CLEARACE FOR NITRO PURGE LINE

DESCRIPTION OF EO: TRIMMED -15 & -16

GAEC EO RELEASE: DK 10/29/69 B

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40)	THRU 14 (44)
LM		LTA3DR/1 (460)	
LM		LTA11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		✓		APPROVED BY	FDR			GH PST	NM WJH		
				DATE	10/27/69			10-27-69	10-28-69		10/28/69	10/29/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FORMER D/S-UP. DK. HE DISTR - FUEL, OX, H2O GR.	LDW280-18776	A1

CDR 103069
ISSUED BY Don Ragas X86046 SECTION VD1 GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1845
CONTROL INFO NO. LDW 280B9971

FOR ALL DWGS LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11(23) EFF. FROM DASH NO.S * WITH N/A LDW 280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-18775-21,-23,-25,-27	A2	SEE DWG.	LDW280-60587
✓ LDW280-18776-11,-12,-13,-14,-17,-19	A2	↑	↑
LDW280-18777-13,-17,-19,-21,-22	A1		
LDW280-18778-1,-11,-15	A2		
LDW280-18779-11,-15,-23,-31,-27,-29	A5		
LDW280-18920-15	A1		
LDW280-18981-11,-13,-15,-17	A2	↓	↓
LDW280-18991-11,-13	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG. & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: JK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~
APPROVED BY	RGT							
DATE	2-16-70			2/13/70	2/16/70		2/16/70	2/17/70

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1845

021970
ISSUED BY A. GROSS/D. RAGAS 87222 SECTION Y. D. I. GROUP NO. 335 PL 25

Q 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18776 EO NO. A3
CONTROL INFO NO. LM-2-6023

IN M/B FOR -17
REMOVE 1 REQD FOR NHA LDW280-60587.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 78

REASON FOR EO: NHA DWG REVISED.

DESCRIPTION OF EO: IN M/B FOR -17
REMOVED 1 REQD ON NHA LDW280-60587.

GAEC EO RELEASE

MODEL	EFFECTIVITY	GAEC UNIT NO.	
LM		LTA-11(23)	
LM		LTA-3 DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	3-2-70			2/26/70	2/19/70	2-19-70	3-2-70	2/20/70
19 Feb 70	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

Approved by (stress group): KC

PRIORITY: C
DRAWING TITLE: FORMER D/S~U. DECK He~FUEL~OX~H_2O & GLYCOL LINE
DRAWING NO.: LDW280-18776
EO NO.: A3

ISSUED BY LIAISON J. STECEWYCZ X3605 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280

EO NO/877

CONTROL INFO NO. LDW280C0326

FOR THE FOLLOWING DWG'S AND DASH NO'S
ADD THE FOLLOWING N/A :
LSK280-11372 (DVT 70)

DWG NO	DASH NO.*	REQM'TS	TITLE	CHG. NO.
1 LDW280-18776	-15, -16	3EA/MOD	SEE DWG	A4
LDW280-18777	-15	3/MOD	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ 3890 PK58

REASON FOR EO: PARTS REQD FOR TEST OF UPPER DECK PRIMARY STRUCTURE.

DESCRIPTION OF EO: FOR * ADDED N/A LSK280-11372 FOR DVT(70) EFF.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					NM			
DATE	4/14/70			4/13/70	4/14/70		4-14-70	4/15/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DWG.	LEO280	1877

041570
ISSUED BY DON RAGAS 1392 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18777

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	2EA
		LTA-3DR/1(460)	2EA
		LM-14(44)	2EA
		LM-13(43)	2EA
		LM-12(42)	2EA
		LM-11(41)	2EA
LM	LDW280-60587	LM-10(40)	2EA
PART NO. LDW280-18777-21 & -22		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	6
		LTA-3DR/1(460)	6
		LM-14(44)	6
		LM-13(43)	6
		LM-12(42)	6
		LM-11(41)	6
LM	LDW280-60587	LM-10(40)	6
PART NO. LDW280-18777-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	1EA
		LTA-3DR/1(460)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60587	LM-10(40)	1EA
PART NO. LDW280-18777-11, -13 -15 & -17		GAEC SCH NO. 50-5	

WORK PKG. FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -22

GRUMMAN REL INFO
PRIM NO. W001
207 ME-16 9/24/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 78

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY BIANCHINO
LAYOUT BY D. RAGAS Don 9-22 Ragas
CHECKED BY W. Bulkley
GP LEADER 9/19/69
VEH DESINT 9-22-69
STRUCT NM 9-23-69
STRUCT WH 9/23/69
PROJ ENGR 9/26/69
REL GROUP 9/24/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE-UPPER DECK-HELIUM
DISTR.-FUEL-OX-H2O & GLYCOL

SIZE B
CODE IDENT NO. 26512
LDW280-18777
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9/24/69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18777-22	E	CLIP	AL ALY SH	QQ-A-250/12	7075	.040× 2×2	T6	88	
		-21	↕	↕	↕	↕	↕	.040× 2×2	↕	↕	
		-19	↕	↕	↕	↕	↕	.040× 2×2	↕	↕	
		-17	↕	CLIP	↕	↕	↕	.040× 2×2	↕	↕	
		-15	↕	FORMER	↕	↕	↕	.036× 4×15	↕	↕	
		-13	↕	ANGLE	↕	↕	↕	.032× 3×4	↕	↕	
			↕		↕	↕	↕		↕	↕	
		LDW280-18777-11	E	ZEE	AL ALY SH	QQ-A-250/12	7075	.032× 4×12	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18777

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

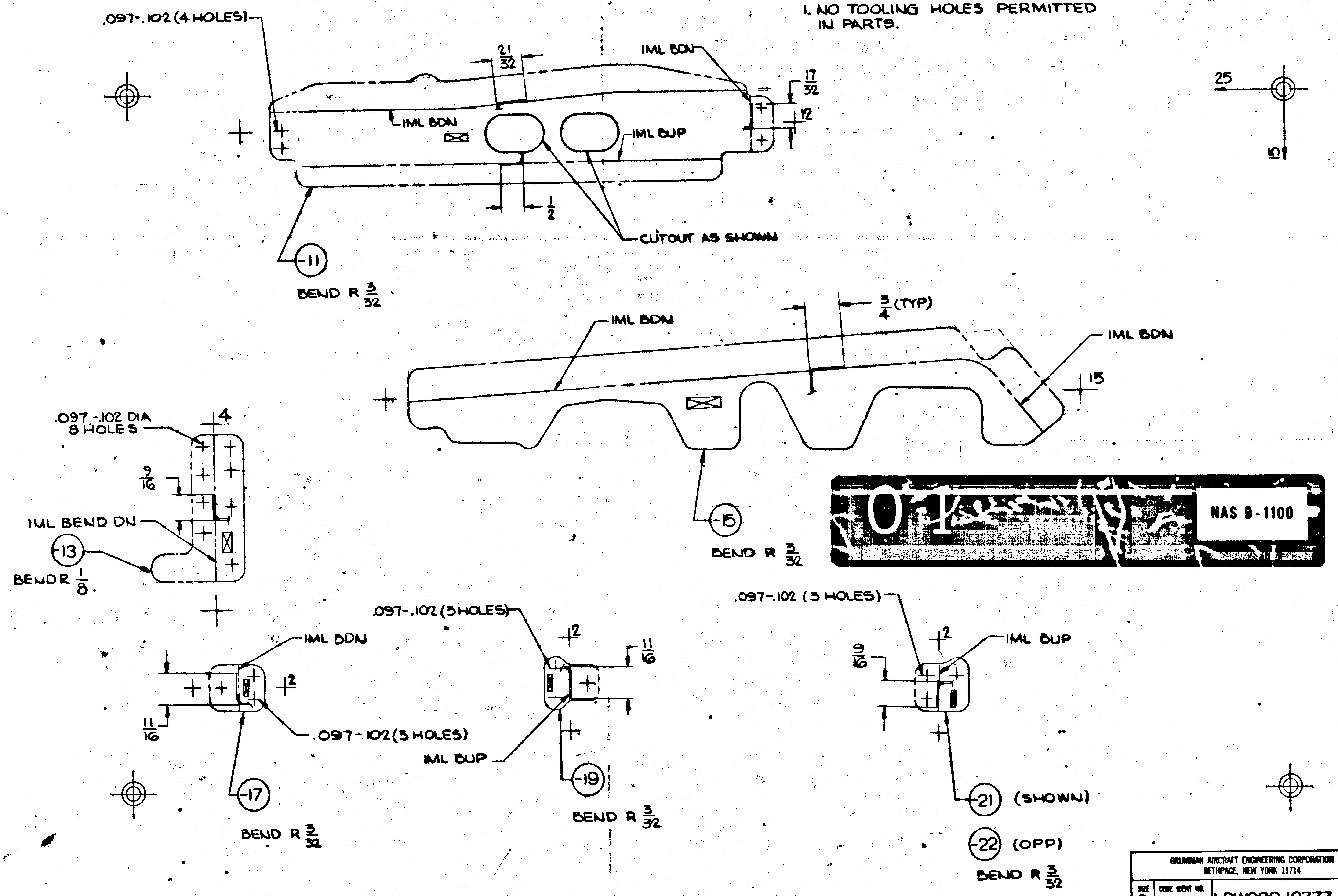
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓

NOTE :

1. NO TOOLING HOLES PERMITTED IN PARTS.



.097-.102 (4 HOLES)
21/32
IML BDN
17/32
.12
IML BDN
IML BUP
1/2
CUTOUT AS SHOWN
25
.15
-11
BEND R 3/32
3/4 (TYP)
IML BDN
IML BDN
.15
-15
BEND R 3/32
.097-.102 DIA 8 HOLES
.4
9/16
IML BEND DN
-13
BEND R 1/8
IML BDN
.12
11/16
.097-.102 (3 HOLES)
-17
BEND R 3/32
.097-.102 (3 HOLES)
.12
11/16
IML BUP
-19
BEND R 3/32
.097-.102 (3 HOLES)
9/16
.12
IML BUP
-21 (SHOWN)
-22 (OPP)
BEND R 3/32

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18777
SCALE FULL		SHEET 5.00

FOR PHOTO REPRODUCTION1 K2

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280		EO NO. 1845
CONTROL INFO NO. LDW280B9971		

FOR ALL DWG.S LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11(23) EFF. FROM DASH NO.S * WITH N/A LDW280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-18775-21,-23,-25,-27	A2	SEE DWG.	LDW280-60587
✓ LDW280-18776-11,-12,-13,-14,-17,-19	A2	↑	↑
✓ LDW280-18777-13,-17,-19,-21,-22	A1		
LDW280-18778-1,-11,-15	A2		
LDW280-18779-11,-15,-23,-31,-27,-29	A5		
LDW280-18920-15	A1		
LDW280-18981-11,-13,-15,-17	A2	↓	↓
LDW280-18991-11,-13	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 78

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1(460) UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG. & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11 (23) EFF.

GAEC EO RELEASE: ✓ (5) JK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RSS							
✓			✓	DATE	2-16-70			2/13/70	2/16/70		2/16/70	2/17/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1845

021970

ISSUED BY A. GROSS/D. RAGAS 87222 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-18777
EO NO. A2
CONTROL INFO NO. LM-2-6022

IN M/B FOR -19
6 REQD FOR NHA LDW280-60587
S/B 3 REQD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 78

REASON FOR EO: NHA DWG REVISED.

DESCRIPTION OF EO: IN M/B FOR -19
3 REQD ON N/A LDW280-60587 WAS 6 REQD

GAEC EO RELEASE

MODEL	EFFECTIVITY	GAEC UNIT NO.	
LM		LTA-11(23)	
LM		LTA-3 DR/1(460)	
LM	LM-10(40)	THRU	LM-14(44)

DRAWING CHANGE RE'QD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
						KC			
DATE	3-2-70				2/26/70	2/19/70	2-20-70	3-2-70	2/20/70
19 Feb 70	V01								

PRIORITY: C
ZEE ~ D/S
DRAWING TITLE: UP. DECK H. DISTR ~ FUEL ~ OX ~ H2O ~ GLYCOL
DRAWING NO. LDW280-18777
EO NO. A2

ISSUED BY **LIAISON** J. STECEWYCZ X3605 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1877
CONTROL INFO NO. LDW280C0326

FOR THE FOLLOWING DWG'S AND DASH NO'S
ADD THE FOLLOWING N/A:
LSK280-11372 (DVT 70)

DWG NO	DASH NO.*	REQM'TS	TITLE	CHG. NO.
LDW280-18776	-15, -16	3EA/MOD	SEE DWG	A4
LDW280-18777	-15	3/MOD	SEE DWG	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ 3890 PK 28

REASON FOR EO: PARTS REQD FOR TEST OF UPPER DECK PRIMARY STRUCTURE.

DESCRIPTION OF EO: N/A FOR * ADDED LSK280-11372 FOR DVT(70) EFF.

GAEC EO RELEASE: ⓟ

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		DVT(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					NM		RJF	
DATE	4/14/70			4/13/70	4/14/70		4-14-70	4/15/70

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO280
EO NO.: 1877

041570
ISSUED BY DON RAGAS 1392 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18778

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	1 EA
		LTA-3DR/1(460)	1 EA
		LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60587	LM-10(40)	1 EA

PART NO. LDW280-18778-1;-11;-15&-17

WORK PACKAGE FUNCTION#110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED ~

LAST DASH NO. USED -17

GRUMMAN REL INFO

PRIM NO. 207 JK(001) ME-16-9/24/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 78

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY W. CONROY 9-23-69
LAYOUT BY H. DONNER 9/24/69
CHECKED BY 9-24-69
GR LEADER Thorjusen 9-24-69
VEH DES INT 9/24/69
STRUCTURES N.M. 9-24-69
STRUCTURES 9/24/69
PROJ ENGR
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET ASSY
DESCENT STAGE-OXIDIZER
QUICK DISC-FWD BULKHEAD

SIZE B
CODE IDENT NO. 26512
LDW280-18778
SCALE NONE
SHEET 1.00 OF 3

CDR 9-24-69

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A/R		NAS1097AD3	E	RIVET	IND STD						
3		NAS686A3		NUT PLATE	IND STD						
		LDW280-18778-17		PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.093 × 1 × 2	NONE	88	
		-15		ANGLE			7075	.032 × 2 × 3	T6		
1		-13		BRACKET				.032 × 4 × 6			
		LDW280-18778-11		CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 × 5 × 8	T6	88	
		LDW280-18778-1	E	BRACKET ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

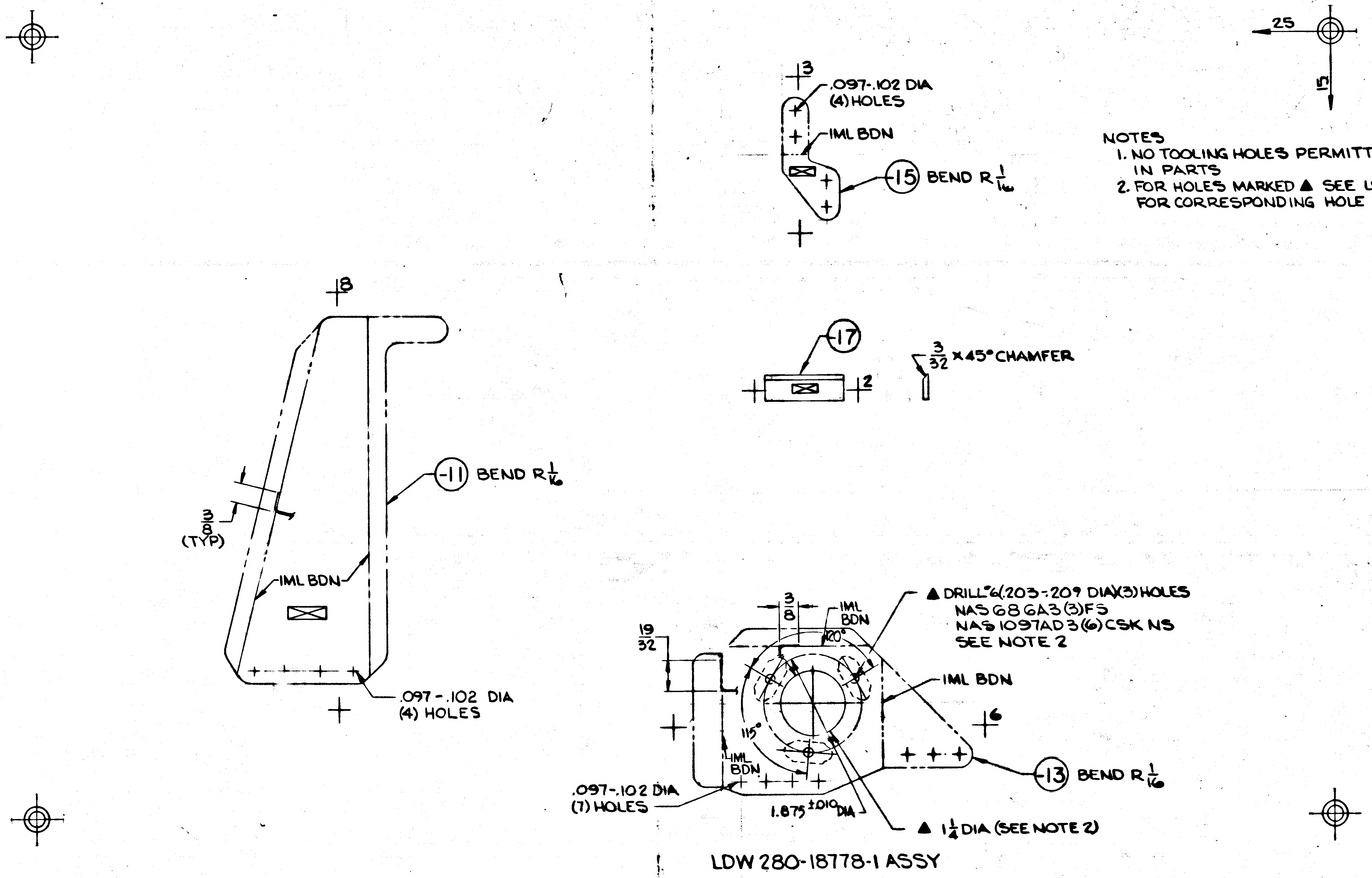
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18778
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01
NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP 14-15302	✓
TOLERANCE ON LOFTED DELINEATIONS IS ±1/32	✓


3
.097-.102 DIA
(4) HOLES
IML BDN
-15 BEND R 1/16
25
15
8
3/8 (TYP)
IML BDN
-11 BEND R 1/16
.097-.102 DIA
(4) HOLES
-17
2
3/32 X 45° CHAMFER
3/8
IML BDN
19/32
120°
115°
IML BDN
▲ DRILL #6 (.203-.209 DIA)(3) HOLES
NAS 686A3 (3) FS
NAS 1097AD3 (6) CSK NS
SEE NOTE 2
IML BDN
6
-13 BEND R 1/16
.097-.102 DIA
(7) HOLES
1.875 ±.010 DIA
▲ 1 1/4 DIA (SEE NOTE 2)

LDW 280-18778-1 ASSY

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS
2. FOR HOLES MARKED ▲ SEE LSC 270-8 *5-1 FOR CORRESPONDING HOLE PATTERN.

TRAM OK TS 9-22-68

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18778
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

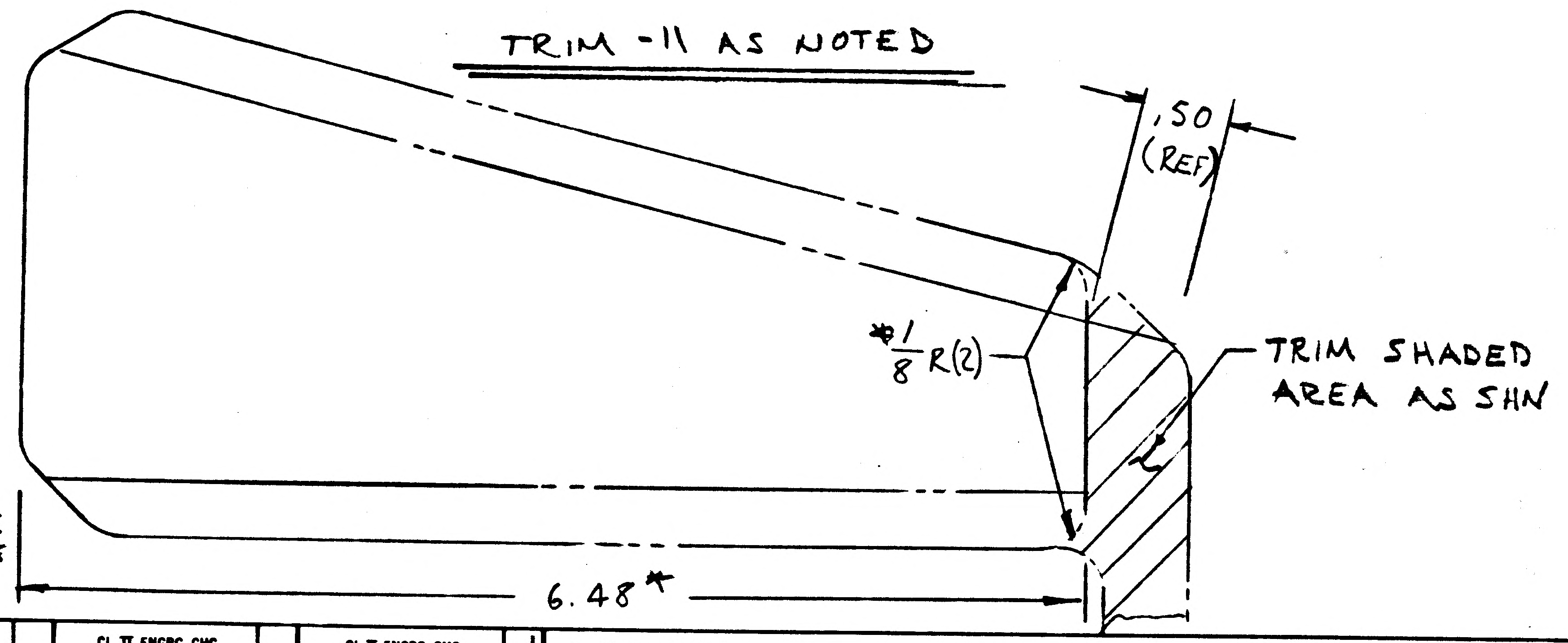
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 -18778		EO NO. A1
CONTROL INFO NO. LM2-5807		

IN F/D, B/M & MOD BLK: REMOVE -17

TRIM -11 AS NOTED



*
DIM SHN ARE FOR EO PURPOSE ONLY.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890

⑤

REASON FOR EO

TO REMOVE INTERFERANCE WITH MESA SUPT STRUCTURE

DESCRIPTION OF EO

IN F/D, B/M & MOD BLK REMOVED -17
IN F/D TRIMMED -11

R GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40)	
LM		THRU 14 (44	
		LTA11 (23) LTA3DR/1 (460	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-11 ✓	-17

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	88t				KC			
DATE	1-6-70			1/5/70	12/22/69	12-22-69	1/6/70	1/13/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY D/S-OX, QUICK DISC - FWD	LDW280-18778	A1

ISSUED BY LIAISON DON RAGAS / J. MALONEY x3604 SECTION VDI GROUP NO. 335 PL 2

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1845
CONTROL INFO NO. LDW280B9971

FOR ALL DWG.S LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11(23) EFF. FROM DASH NO.S * WITH N/A LDW 280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓LDW280-18775-21,-23,-25,-27	A2	SEE DWG.	LDW280-60587
✓LDW280-18776-11,-12,-13,-14,-17,-19	A2	↑	↑
✓LDW280-18777-13,-17,-19,-21,-22	A1	│	│
✓LDW280-18778-1,-11,-15	A2	│	│
LDW280-18779-11,-15,-23,-31,-27,-29	A5	│	│
LDW280-18920-15	A1	│	│
LDW280-18981-11,-13,-15,-17	A2	↓	↓
LDW280-18991-11,-13	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PKG 78

(5)

REASON FOR EO
DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1 (460)
UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO
FOR DWG. & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC ✓ EO RELEASE
JK 2/17/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1 (460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	RST				WJH			
DATE	2-16-70			2/13/70	2/16/70		2/16/70	2/17/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1845

021970
ISSUED BY A. GROSS/D. RAGAS 87222 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

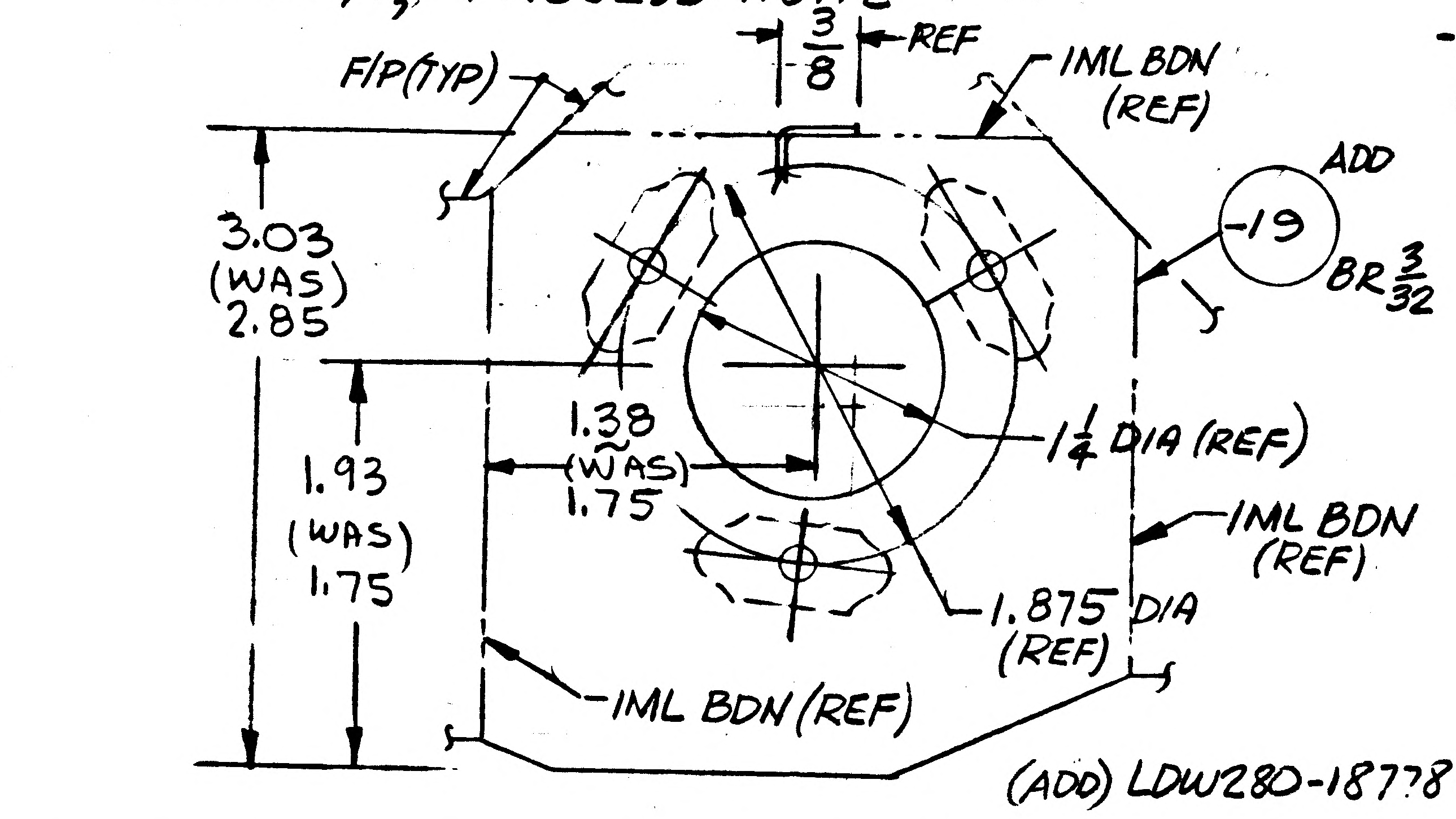
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEEᴿ'G ORDER

DWG. NO. LDW280-18778		EO NO. A3
CONTROL INFO NO. LDW280C0420		

CREATE -3 ASSY IDENT TO -1 EXCEPT ON -3 ASSY, -19 REPLACES -13
ADD -19 IDENT TO -13 EXCEPT AS NOTED. -19 MATL TO BE 2024-T3/T42 BARE QQ-A-250/4, PROCESS: NONE



-3 EFF LM-10(40) THRU LM-14(44)
N/A LDW280-60587 1 REQD/VEH

REMOVE -1, -13 FOR ALL EFF

LOFTED DWG ~ DIMENSIONS SHOWN FOR ENG REF.

(ADD) LDW280-18778 -3 ASSY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 5538 PKG 50

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RELOCATED OX/VENT QD TO ELIMINATE INTERFERENCE WITH GSE SCUPPER	ADDED -19, -3 ASSY REMOVED -13, -1 ASSY	

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
				✓			-13 -1
LM	LM-10(40) THRU LM-14(44)						

APPROVED BY								
DATE	5/6/70			5/6/70	5/6/70		5/6/70	5/6/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET ASSY - DIS-OXIDIZER QUICK DISC ~ FWD BULKHEAD	LDW280-18778	A3

5/7/70
ISSUED BY J. LANG / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

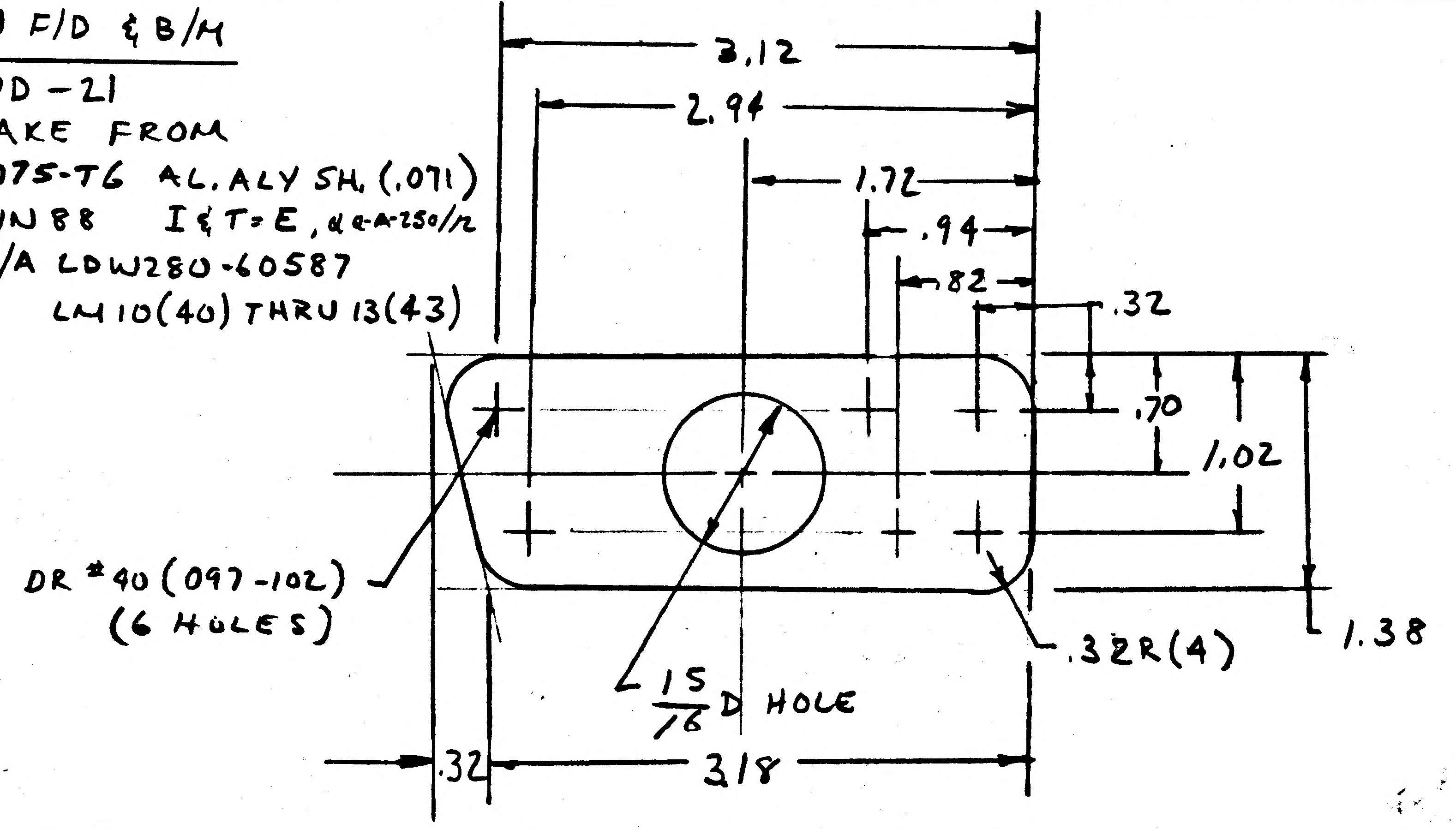
ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280 -18778		EO NO. A4
CONTROL INFO NO. LDW280 - 0747		

IN F/D & B/M

ADD -21
MAKE FROM
7075-T6 AL. ALY SH. (.071)
FIN 88 I&T=E, QQ-A-250/12
N/A LDW280-60587
LM 10(40) THRU 13(43)



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG #78

REASON FOR EO: TO PROVIDE PURGE TO BATTERY AREA

DESCRIPTION OF EO: IN F/D, B/M & MOD BLK ADDED -21

GAEC EO RELEASE: 7/13/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40)	
		THRU 13 (43)	

DRAWING CHANGE REQD	✓ REVISE DWG	RECORD EO								
DISPOSITION OF PARTS	NOT REWORK	REQD SCRAP								
APPROVED BY	RJA			RB	WA WH		RJA			
DATE	7-13-70			7/10/70	7/10/70		7-13-70	7/13/70		
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG			

PRIORITY: C

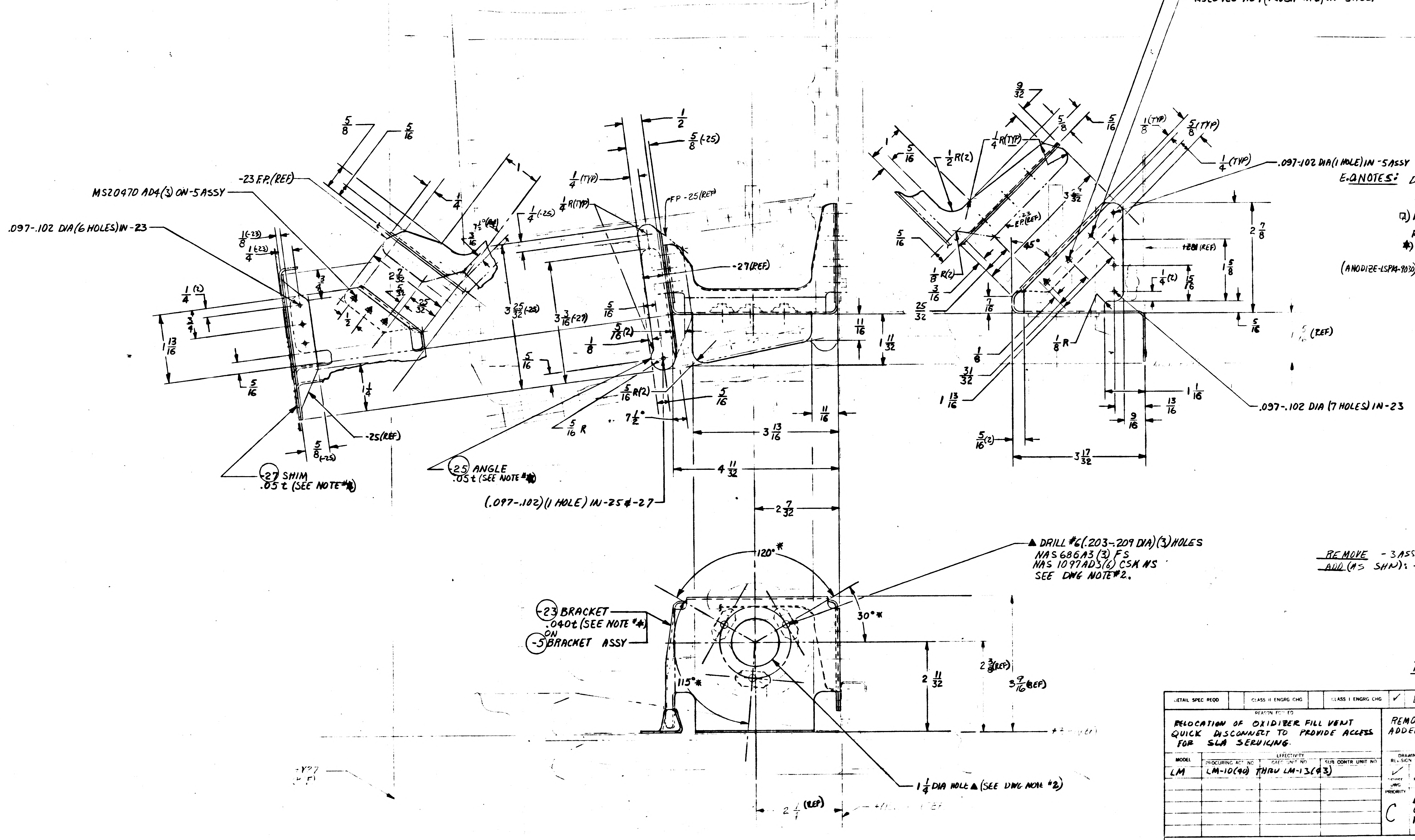
DRAWING TITLE: BRACKET ASSY D/S - OX LINES SUPT

DRAWING NO.: LDW280-18778

EO NO.: A4

CDR 070970
ISSUED BY DON RAGAS 87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100


MS20470-AD4(2) ON-5ASSY
MS20426-AD4(FLUSH N.S) ON-5ASSY
MS20470 AD4(3) ON-5ASSY
-23 F.P.(REF)
.097-.102 DIA(6 HOLES) IN-23
FP -25(REF)
-27(REF)
.097-.102 DIA(1 HOLE) IN -5ASSY
.097-.102 DIA (7 HOLES) IN-23
-25(REF)
(27) SHIM
.05 t (SEE NOTE #)
(25) ANGLE
.05 t (SEE NOTE #)
(.097-.102)(1 HOLE) IN-25 & -27
▲ DRILL #6(.203-.209 DIA)(3)HOLES
NAS 686A3(3) FS
NAS 1097AD3(6) CSK NS
SEE DWG NOTE #2.
(23) BRACKET
.040t (SEE NOTE #)
ON
(-5) BRACKET ASSY
1 1/4 DIA HOLE ▲ (SEE DWG NOTE #2)
120°
30°
115°
45°
2 11/32
2 3/8(REF)
3 7/16(REF)
2 1/4 (REF)
2 7/32
4 11/32
3 13/16
3 17/32
1 5/16 (REF)
2 7/8
1 5/8
1 13/16
3 25/32(-25)
3 3/16(-27)
7 1/2°
5/16 R
1/4 R(TYP)
1/2 R(2)

E.O NOTES: DO NOT INCORPOR

▢) LOFTED DWG ~ DIM
REFERENCE ONLY, EX
✱) ALL PARTS TO BE
AL ALLOY SHT, Q
(ANODIZE-LSP14-9030), 5/32 BEND RADIUS,
PER VEHICLE, EFF

REMOVE - 3ASSY, -11, -15 & -19
ADD (AS SHN): -5 ASSY, -23, -25, -

THIS IS AN

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓	LCD5651 PA

REASON FOR EO

RELOCATION OF OXIDIZER FILL VENT QUICK DISCONNECT TO PROVIDE ACCESS FOR SLA SERVICING.

REMOVED -11, -15, -19 & -3
ADDED -23, -25, -27 & -

MODEL	EFFECTIVITY PROCURING ACT NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM	LM-10(90) THRU LM-13(93)		

DRAWING REVISION REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: -11-15-19-3 ✓

DATE BY

PRIORITY: C

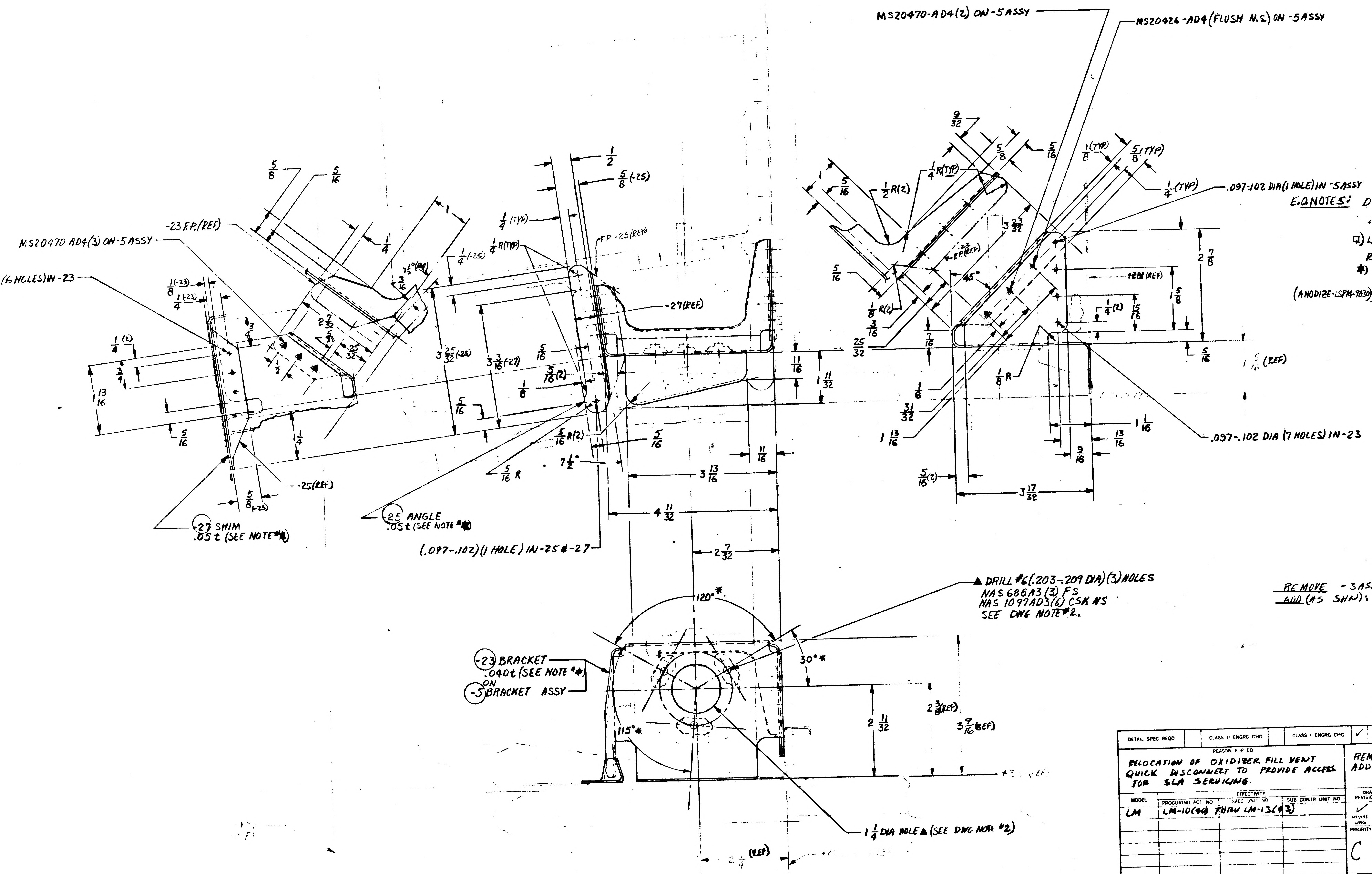
DRAWING TITLE: BRACKET ASSY ~ DES OXIDIZER QUICK DI FWD BULKHEAD

ISSUED BY J.J.ROGERS/G.HANSMANN (X87222) SECTION VEH DES.INT. GROUP NO. 250 PL 25 CODE IDENT 2651

ENG 2.3 REV 3-65

01/02 NAS 9-1100

DWG SIZE 30 X 52
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (30 x 52) = 10.8 SQ FT
1/4 SIZE SHEET AREA (1/4 OF FULL) = 2.7 SQ FT



MS20470-AD4(2) ON-5ASSY
MS20426-AD4(FLUSH N.S) ON-5ASSY
MS20470 AD4(3) ON-5ASSY
-23 F.P.(REF)
DIA(6 HOLES) IN-23
FP-25(REF)
-27(REF)
-25(REF)
1/4 R(TYP)
1/4 (TYP)
1/2 R(2)
1/4 R(TYP)
5/8 (TYP)
1/8 (TYP)
.097-.102 DIA(1 HOLE) IN -5ASSY
.097-.102 DIA (7 HOLES) IN-23
3 25/32 (-25)
3 3/16 (-27)
1 13/16
1 1/4
3 13/16
4 11/32
2 7/32
3 17/32
7 1/2°
45°
5/16 R
5/16 R(2)
1/8 R
1 5/16 (REF)
27 SHIM
.05 t (SEE NOTE #*)
25 ANGLE
.05 t (SEE NOTE #*)
(.097-.102)(1 HOLE) IN-25 & -27
▲ DRILL #6(.203-.209 DIA)(3)HOLES
NAS 686A3 (3) FS
NAS 1097AD3(6) CSK NS
SEE DWG NOTE #2.
120°*
30°*
115°*
23 BRACKET
.040t (SEE NOTE #*)
ON
5 BRACKET ASSY
2 11/32
2 3/8 (REF)
3 9/16 (REF)
2 1/4 (REF)
1 1/4 DIA HOLE ▲ (SEE DWG NOTE #2)

E.O NOTES: DO NOT INCORPORATE ON DWG.

1) LOFTED DWG ~ DIMENSIONS SHOWN FOR MANUFACTURING REFERENCE ONLY, EXCEPT AS NOTED BY *.

*) ALL PARTS TO BE MADE FROM 2024-T3/T42 BARE AL ALLOY SHT, QQ-A-250/4, PROCESS: NONE, FINISH #88 (ANODIZE-LSP14-9030); 5/32 BEND RADIUS, I&T=E ~ N/A LDW280-54526 (1EA) REQ'D PER VEHICLE, EFF: LM-10(40) THRU LM-13(43) FOR -5, -25 & -27.

REMOVE - 3ASSY, -11, -15 & -19
ADD (AS SHN): -5 ASSY, -23, -25, -27

THIS IS AN ORIGINAL E.O.

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓ LCD5651, PKG #50 Pg#1
CONTR INFO NO	LDW280C0915				
REASON FOR EO	RELOCATION OF OXIDIZER FILL VENT QUICK DISCONNECT TO PROVIDE ACCESS FOR SLA SERVICING				
DESCRIPTION OF EO	REMOVED -11, -15, -19 & -3ASSY. ADDED -23, -25, -27 & -5ASSY				
MODEL	LM				
EFFECTIVITY	PROCURING ACT NO	LM-10(40) THRU LM-13(43)	GAEC UNIT NO		SUB CONTR UNIT NO
DRAWING REVISION REQD	REVISE DWG ✓	RECORD EO			
DISPOSITION OF PARTS	REWORK	SCRAP -11,-15,-19,-3 ✓			
BY	JJR	DATE	9-3-70	VDT	
SUPPORT		REL GROUP			
GROUP LEADER	RL 9/2/70	STRESS GROUP	9/3/70	LIAISON ENGRG	
PROJ ENGR	9/3/70		9/3/70		
PRIORITY	C	DRAWING TITLE	BRACKET ASSY ~ DESCENT STAGE ~ OXIDIZER QUICK DISCONNECT ~ FWD BULKHEAD		
ENGINEERING ORDER	DRAWING NO	LDW280-18778	EO NO	A5	
ISSUED BY	J.J ROGERS/G. HANSMANN (X87232)	SECTION	VEH DES. INT	GROUP NO. 280	PL 25
CODE IDENT NO	26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE L.I. N.Y.			

ENG 32 3 REV 3-66

CDR 9/3/70

02/02 NAS 9-1100

LDW280-18779

PART NO. LDW280-18779-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	2
		LTA-3DR/1(460)	2
		LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11(41)	2
LM	LDW280-60587	LM-10(40)	2

GAEC SCH NO.

PART NO. LDW280-18779-11, 15, -17 & -19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60587	LTA-11(23)	1EA
		LTA-3DR/1(460)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
LM	LDW280-60587	LM-10(40)	1EA

GAEC SCH NO. 50-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO			
LAST DASH NO. USED	-19	PRIM NO.	SALB K(001)		
		207	ME-16	9/26/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3890, PKG 78	

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A MASONE 9-24-69		
LAYOUT BY	FRANK OLIVERI 9-26-69		
CHECKED BY	W. BULKLEY		
GR LEADER	G.H. Thorgesen 9-26-69		
VEH DES INT	F. DeRespinis 9-26-69		
STRUCT		PROJ ENGR	9/26/69
STRUCT	9/26/69	REL GROUP	9/27/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET
DESCENT STAGE - HELIUM PRESS.
TEST POINTS - L.H. AFT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18779
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9-26-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18779-19	E	CHANNEL	AL ALLOY SH	QQ-A-250/12	7075	.032 x 3 x 5	T6	88	
		↕ -17	↕	ANGLE	↕	↕	7075	.032 x 2 x 5	T6	↕	
		-15		PLATE			7075-T6	.032 x 3 x 3	NONE		
		↕ -13	↕	BRACKET	↕	↕	7075	.032 x 3 x 3	T6	↕	
		LDW280-18779-11	E	BRACKET	AL ALLOY SH	QQ-A-250/12	7075	.032 x 6 x 16	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18779

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

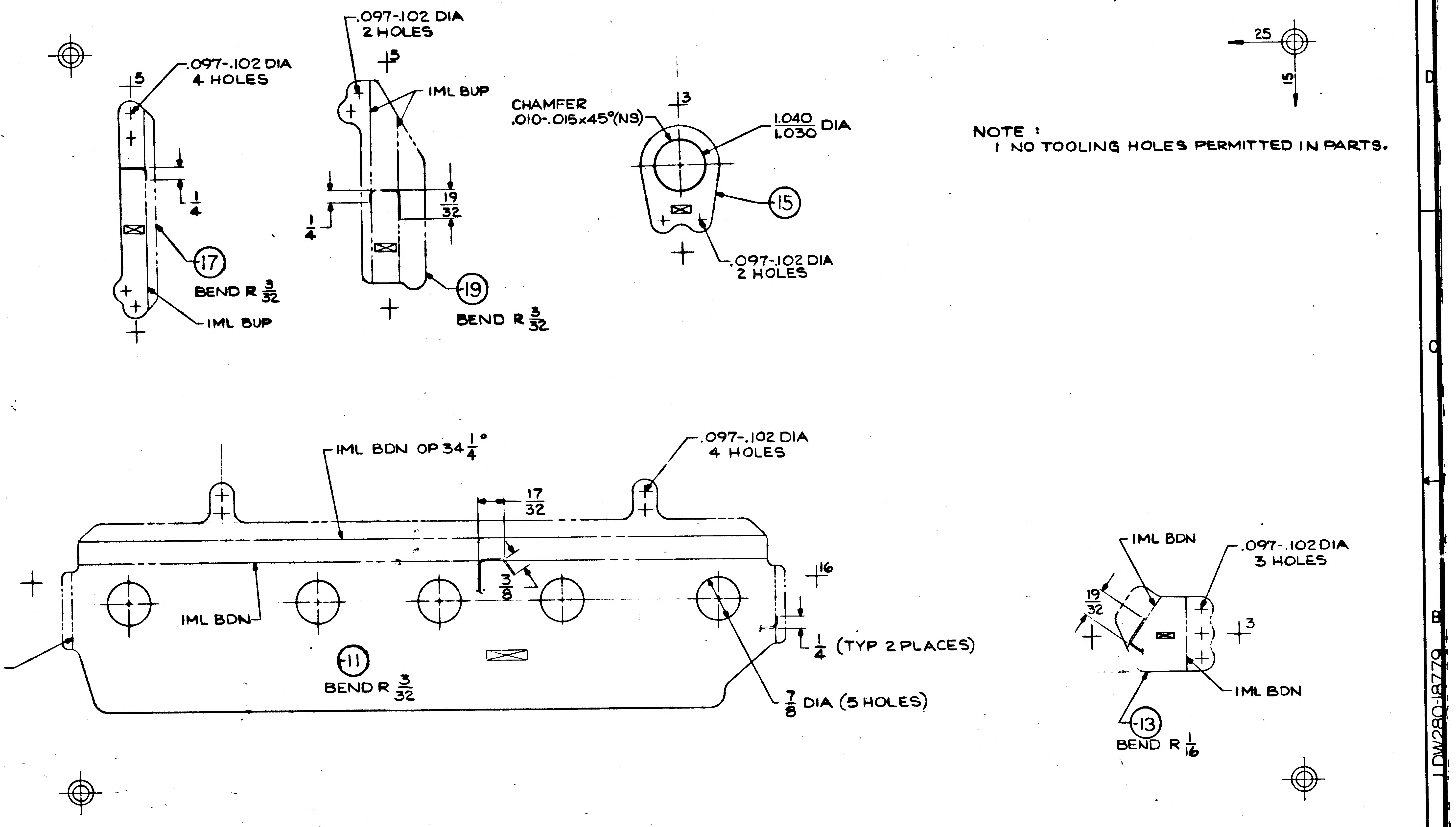
01

NAS 9-1100

LDW280-18779

outline & trim. O.K.
TS 9-12-69

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓


.097-.102 DIA
4 HOLES
5
1/4
17
BEND R 3/32
IML BUP
.097-.102 DIA
2 HOLES
5
IML BUP
19/32
1/4
19
BEND R 3/32
CHAMFER
.010-.015x45°(NS)
3
1.040/1.030 DIA
15
.097-.102 DIA
2 HOLES
25
15
IML BDN OP 34 1/4°
.097-.102 DIA
4 HOLES
17/32
3/8
16
1/4 (TYP 2 PLACES)
IML BDN
IML BDN
11
BEND R 3/32
7/8 DIA (5 HOLES)
IML BDN
.097-.102 DIA
3 HOLES
19/32
3
IML BDN
13
BEND R 1/16

NOTE :
1 NO TOOLING HOLES PERMITTED IN PARTS.

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18779

SCALE FULL SHEET 3.00

2 FOR PHOTO REPRODUCTION 1 2K

ENG 32.1 REV 3-65

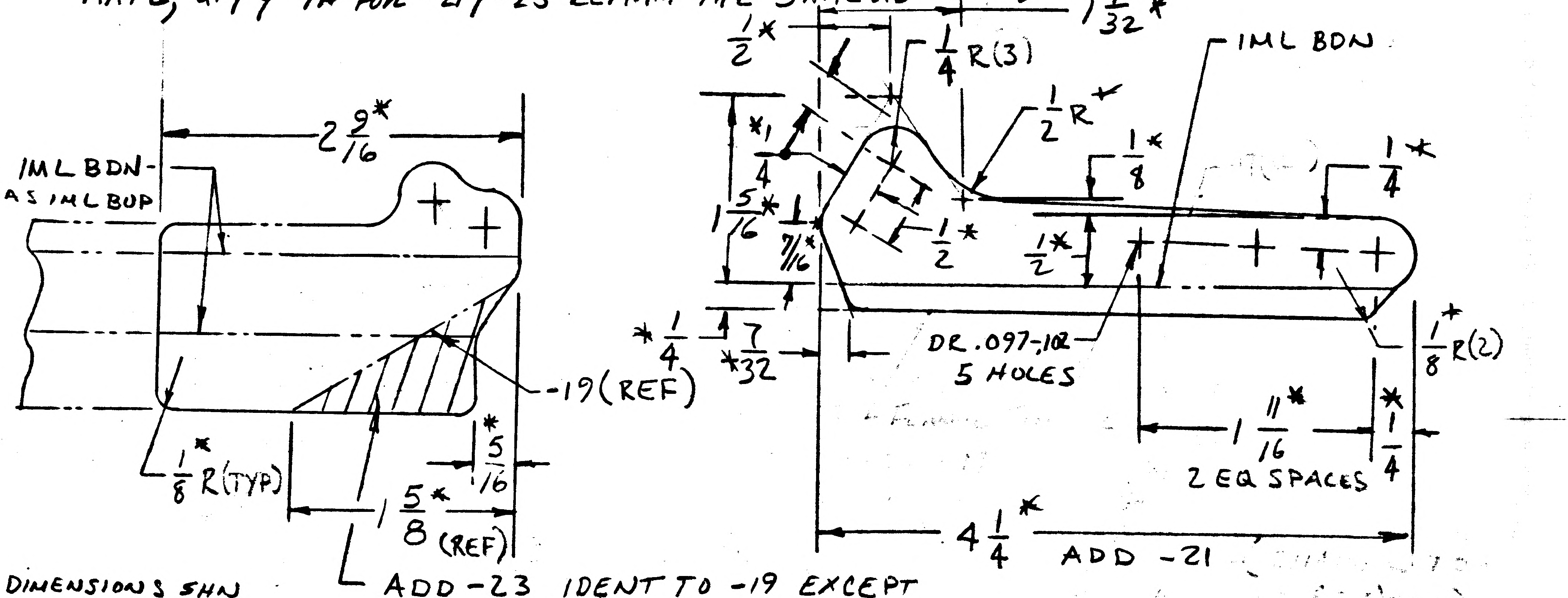
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18779
EO NO. A1
CONTROL INFO NO. LDW280B9215

IN F/D, B/M & MODBLK ADD -21 & -23 REPLACING -17 & 19 RESPECTIVELY
MAT'L, QTY & N/A FOR -21 & -23 REMAIN THE SAME AS -17 & -19



IML BDN-
WAS IML BUP
2 9/16 *
-19 (REF)
1/8 * R (TYP)
1 5/8 * (REF)
5/16 *
1/2 *
1/4 R(3)
1 1/32 *
IML BDN
1/2 R *
1/8 *
1/4 *
* 1/4
1 5/16 *
7/16 *
1/2 *
1/2 *
* 1/4
7/32 *
DR .097-.102
5 HOLES
1/8 * R(2)
1 11/16 *
2 EQ SPACES
1/4 *
4 1/4 *

ADD -23 IDENT TO -19 EXCEPT
AS SHOWN

ADD -21

X-DIMENSIONS SHN
DO NOT INCORPORATE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PK 78 (5)

REASON FOR EO: RELOCATION OF He LINES IN QUAD I FOR PAYLOAD. FTG CLEARANCE.

DESCRIPTION OF EO: ADDED -21 & -23
REMOVED -17 & -19

GAEC EO RELEASE: SW 10-31-69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU 14 (44)	
LM		LTA3DR/1 (460)	
LM		LTA11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-17 -19

	APPROVED BY	DATE
VD1	F.N.R.	10/28/69
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	PBT	10-28-69
STRESS GROUP	W.H.	10/28/69
LIAISON ENGRG		
PROJ ENGRG		10/29/69
		10/30/69

PRIORITY: C
DRAWING TITLE: BRACKET D/S - He PRESS, TEST POINTS - L.H.
DRAWING NO. LDW280-18779
EO NO. A1

CDR 103069
ISSUED BY DON RAGAS 86046 SECTION VD1 GROUP NO. 280 PL 25

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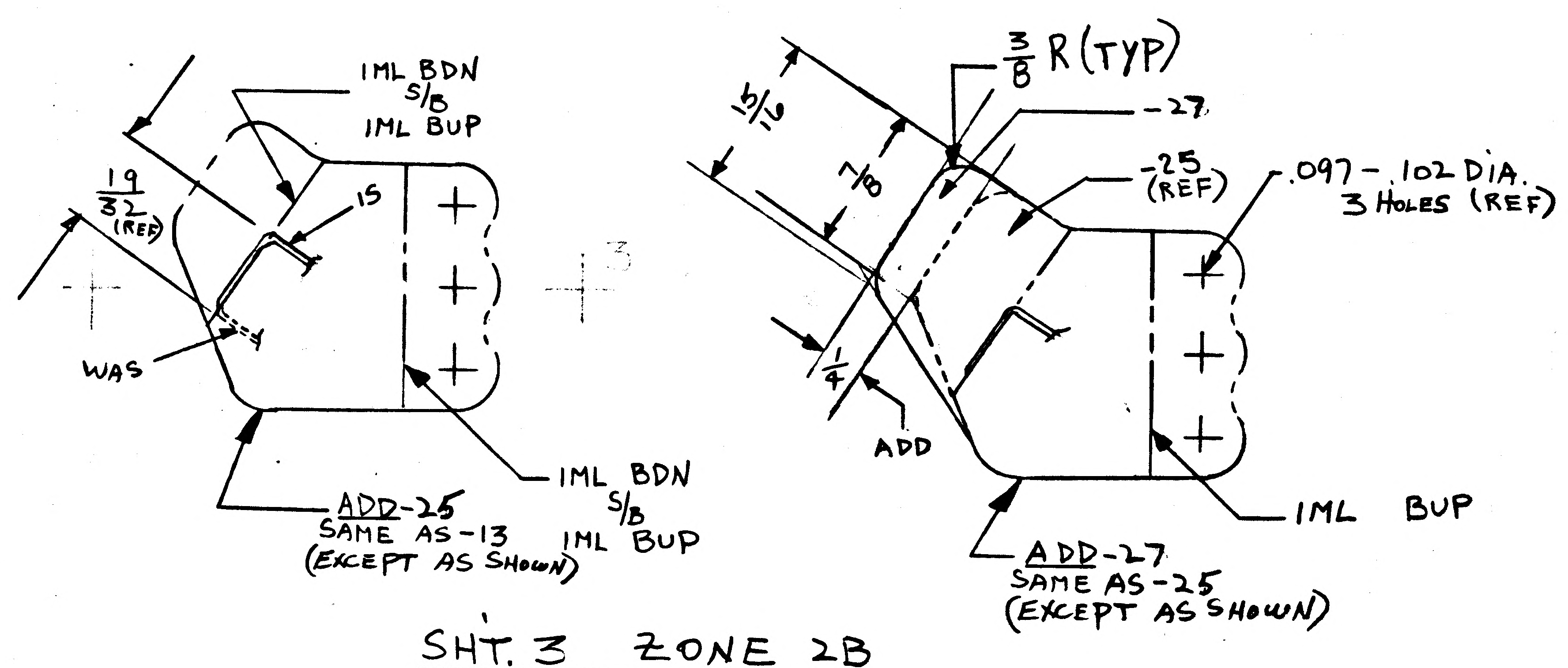
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18779
EO NO. A2
CONTROL INFO NO. LM-2-5810

IN F/D, B/M & MODEL BLOCK: LDW280-18779-13(2EA); REPLACED BY LDW280-18779-25(1) & -27(1)


IML BDN S/B IML BUP
19/32 (REF)
15
WAS
ADD-25
SAME AS -13
(EXCEPT AS SHOWN)
IML BDN S/B IML BUP
3/8 R (TYP)
-27
15/16
7/16
-25 (REF)
.097-.102 DIA.
3 HOLES (REF)
1/4
ADD
IML BUP
ADD-27
SAME AS -25
(EXCEPT AS SHOWN)

SHT. 3 ZONE 2B

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD3890 PKG 02

REASON FOR EO: To Pick Up Adjacent Structure

DESCRIPTION OF EO: IN F/D, B/M & MODEL BLOCK ADDED -25 & -27 REMOVED -13

R EO RELEASE (2) GAEC
JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU LM-14(44)	
LM		LTA-3DR/1(460)	
LM		LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	PJT				KC		PJT	
DATE	1-12-70			1/7/70	12/22/69	12-22-69	1-14-70	1/5/70
12-22-69	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: BRACKET - P/S HELIUM PRESSURE TEST POINTS - L.H. AFT
DRAWING NO. LDW280-18779
EO NO. A2

ISSUED BY LIAISON H. COHAN (X-3604) SECTION V.D.I. GROUP NO. 335 PL 25

0 1

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18779
EO NO. A3
CONTROL INFO NO. LM2-5833

IN F/D, B/M & MOD BLK
ADD -29 REPLACING -21
MAT'L QTY & N/A FOR -29 REMAIN THE SAME AS -21

-29 IS IDENT TO -21 EXCEPT AS NOTED
IML BDN S/B IML BUP.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PK02

REASON FOR EO: INCORRECT MOLD LINE

DESCRIPTION OF EO: ADDED -29
REMOVED -21

GAEC EO RELEASE (2)

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU	LM14 (44)
LM		LTA 3DR/1	(460)
LM		LTA-11 (29)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -21 ✓

APPROVED BY				Group Leader	KC			
DATE	1-12-70			1-9-70	1/6/70	1-7-70	1-14-70	1/7/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: BRACKET D/S. He PRESS. TEST POINTS LH
DRAWING NO. LDW280-18779
EO NO. A3

ISSUED BY LIAISON DON RAGAS SECTION VDI GROUP NO. 335 PL 2

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

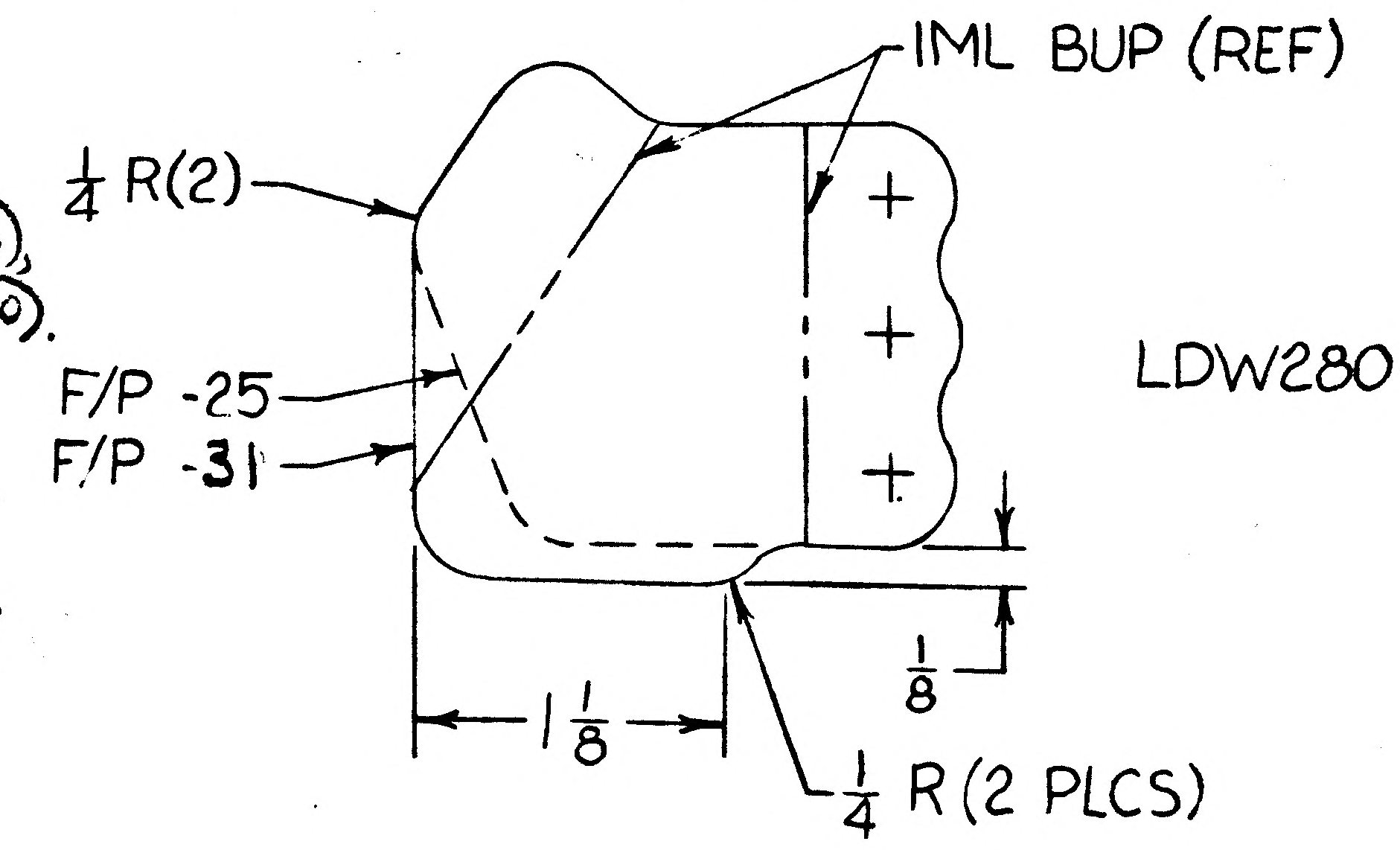
DWG. NO. LDW280-18779 EO NO. A4

CONTROL INFO NO. LM-2-5892

IN F/D, B/M, & M/B
CREATE -31. -31 IS IDENT TO -25 EXCEPT AS SHOWN. DIMS ARE FOR EO INFO ONLY AND ARE NOT TO BE INCORP ON DWG.

RESTRICT -25 EFF TO LM-10 (40) WAS LM-10 (40) THRU LM-14(44), LTA-11 (23) & LTA-3DR/1 (460).

EFF -31: LM-11 (41) THRU LM-14(44), LTA-11 (23) & LTA-3DR/1 (460), N/A LDW280-60587



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PKG 02

(2)

REASON FOR EO: ADDITIONAL MATL REQD TO PICK UP FSTNR.

DESCRIPTION OF EO: IN F/D, B/M, & M/B ADDED -31 & RESTRICTED -25 TO LM-10(40) BY REM LM-11(41) THRU LM-14(44), LTA-11(23) & LTA-3DR/1(460)

R GAEC EO RELEASE 118 VK SALB 1-28-70

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-11(23)	
LM		LTA-3 DR/1	(460)
LM	LM-11(41)	THRU	LM-14(44)

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: REWORK; -25 SCRAP

APPROVED BY				D	KC			
DATE	21 Jan 70	1-26-70		1/26/70	1/21/70	1-21-70	1/27/70	1/22/70
		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C

DRAWING TITLE: BRACKET~D/S He PRESS. TEST POINTS~L.H. AFT

DRAWING NO. LDW280-18779 EO NO. A4

ISSUED BY LIAISON J. STECEWYCZ X3605 SECTION VEHICLE DESIGN INTEG GROUP NO. 280 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1845
CONTROL INFO NO. LDW280B9971

FOR ALL DWG.S LISTED BELOW DELETE LTA-3DR/1 (460) EFF. AND LTA-11(23) EFF. FROM DASH NO.S * WITH N/A LDW 280-60587.

DWG. NO.	CHANGE NO.	DWG. NOMENCLATURE	N/A
✓ LDW280-18775-21,-23,-25,-27	A2	SEE DWG.	LDW280-60587
✓ LDW280-18776-11,-12,-13,-14,-17,-19	A2	↕	↕
✓ LDW280-18777-13,-17,-19,-21,-22	A1	↕	↕
✓ LDW280-18778-1,-11,-15	A2	↕	↕
✓ LDW280-18779-11,-15,-23,-31,-27,-29	A5	↕	↕
LDW280-18920-15	A1	↕	↕
LDW280-18981-11,-13,-15,-17	A2	↕	↕
LDW280-18991-11,-13	A2	SEE DWG.	LDW280-60587

* APPLICABLE DASH NO.S

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 78 (5)

REASON FOR EO: DETAIL PARTS NO LONGER REQ'D FOR LTA-11(23) & LTA-3DR/1(460) UPPER DECK PLUMBING NOT ON TEST ARTICLES

DESCRIPTION OF EO: FOR DWG. & DASH NO.S * DELETED LTA-3DR/1 (460) & LTA-11(23) EFF.

GAEC EO RELEASE: JK 2/17/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3DR/1(460)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY	RST							
DATE	2-16-70			2/13/70	2/16/70		2/16/70	2/17/70
	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1845

021970
ISSUED BY A. GROSS/D. RAGAS 87222 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-18779

EO NO. A6

CONTROL INFO NO. LM-5-22835

IN M/B

REMOVE -15 FOR LM-10 THRU LM-13 (QTY(1)EA)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENG. CHG 4 LCD 3890

REASON FOR EO: PART NO LONGER REQ'D FOR LM-10 THRU LM-13 SINCE PIPING IN THIS AREA WAS REMOVED

DESCRIPTION OF EO: IN M/B REMOVED -15(1)/MOD, FOR LM 10 THRU LM-13

GAEC EO RELEASE: B

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-13(43)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	PSt			Rb.	caw	CH	PSt	Lm
DATE	7-13-70			7/13/70	6/24/70	6-22-70	7-13-70	/25/70
6-19-70	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	COMP

PRIORITY: C

DRAWING TITLE: BRACKET D/S-HELIUM PRESS. TEST PTS. LH. AFT.

DRAWING NO.: LDW280-18779

EO NO.: A6

ISSUED BY LIAISON, P. HUSTED, 86755 SECTION VDI GROUP NO. 335 PL 25

NAS 9-1100

LDW280-18780

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
		LM-11 (41)	2
LM	LDW280-60602	LM-10(40)	2
PART NO. LDW280-18780-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60602	LM-10(40)	1 EA
PART NO. LDW280-18780-11,-13,-15 & -18			

WORK PACKAGE FUNCTION #110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED ~

LAST DASH NO. USED -18

GRUMMAN REF INFO

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES .XXX±.010 .XX±.03 ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD5322 PKG 51

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	W. CONROY 3-20-70
LAYOUT BY	E. COLEMAN
~~CHECKED BY~~	W Bulkeley 4-2-70
GR LEADER	4/2/70
VEH DES INT	Thorjuson 4-2-70
STRUCTURES	4-2-70
STRUCTURES	4/2/70
PROJ ENGR	4/2/70
REL GROUP	J. Marsh 4/3/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE~QUAD I~FWD BHD~
LUNAR ROVER RLSE MECH~BEL CRK SPT

SIZE B

CODE IDENT NO. 26512

LDW280-18780

SCALE NONE

SHEET 1.00 OF 3

77.1 12-65

CDR 4-3-70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18780-18	E	FILLER BLOCK	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 1 x 2	NONE	88	
		-17	↕	FILLER BLOCK	↕	↕	7075-T6	.125 x 1 x 2	NONE	↕	
		-15	↕	ANGLE	↕	↕	7075	.050 x 2 x 2	T6	↕	
		-13	↕	ANGLE	↕	↕	7075	.050 x 2 x 4	T6	↕	
		LDW280-18780-11	E	ANGLE	AL ALLOY SH	QQ-A-250/12	7075	.050 x 4 x 6	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030
T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18780

SCALE NONE

SHEET 2.00

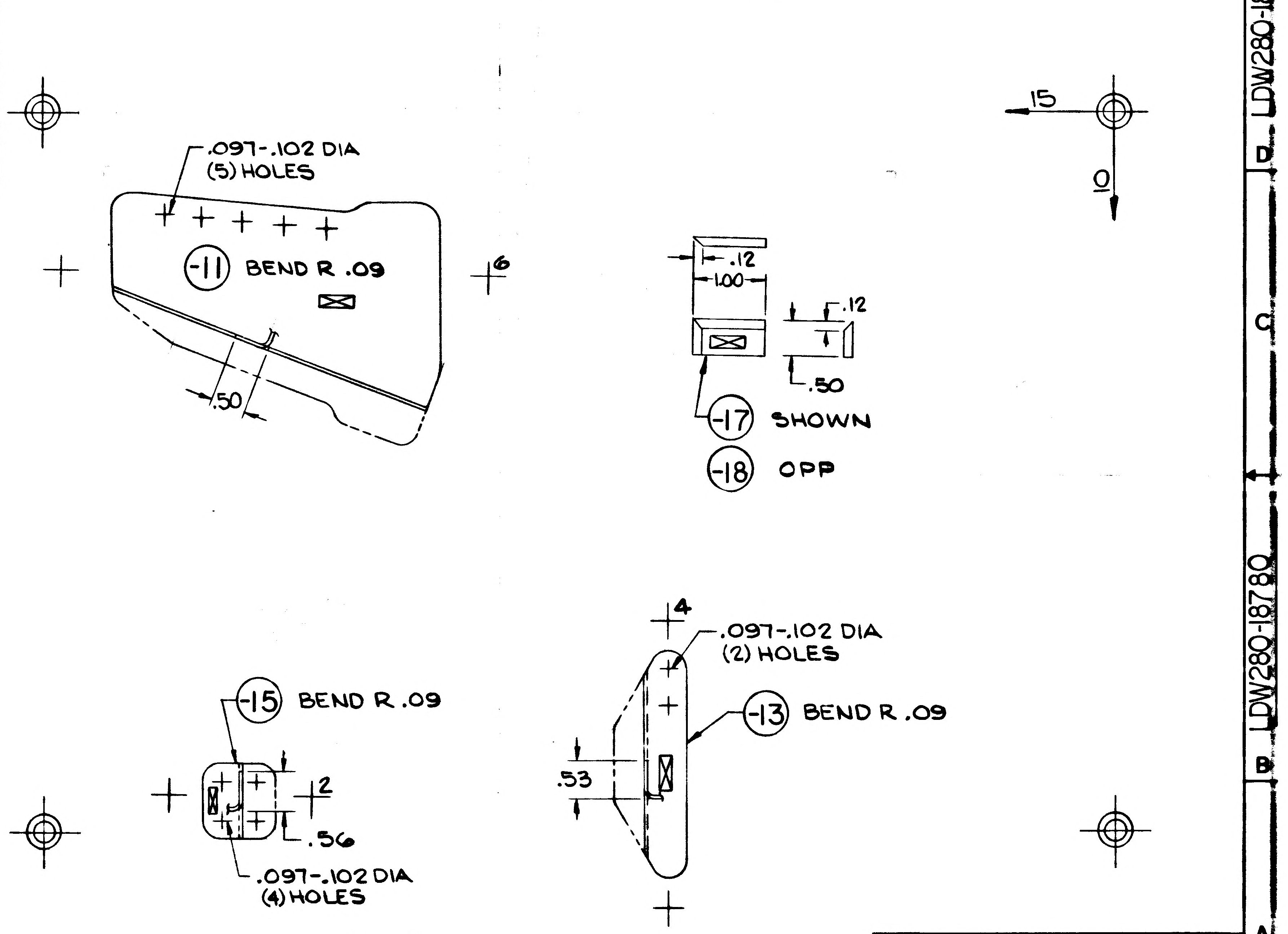
ENG 77.2 7-65

01

NAS 9-1100

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~[illegible]~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓



.097-.102 DIA
(5) HOLES
-11 BEND R .09
.50
6
15
0
.12
1.00
.12
.50
-17 SHOWN
-18 OPP
4
.097-.102 DIA
(2) HOLES
-13 BEND R .09
.53
-15 BEND R .09
2
.56
.097-.102 DIA
(4) HOLES

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18780

SCALE FULL SHEET 3.00

FOR PHOTO 1 REPRODUCTION

LDW280-18780

LDW280-18780

01

NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1878
CONTROL INFO NO. LDW280C0316

FOR DRAWINGS LISTED BELOW ADD M-7 MOCK-UP EFF.: FOR THE NOTED NEXT ASSY'S.

DRAWING NO.*	TITLE	MODULE	REQ'D/VEH	NEXT ASSEMBLY	EO NO.	
LDW280M18226-11	SEE DWG	M-7 (48)	2	LMU280-70150	A3	✓
LDW280-18923-11			1	LMU280-70150	A4	✓
LDW280-18780-15			1	LMU280-70152	A1	✓
LDW280-18780-11			1			
LDW280M17817-12			1	LMU280-70154	B5	
LDW280-18631-17			2	LMU280-70152	B1	
LDW280-18631-23			1			
LDW280-18631-25			1			
LDW280-60549-1			1	LMU280-70152	A4	
LDW280-60549-7			1			
LDW280-18781-13			2	LMU280-70157	A2	
LDW280-18781-15			1	LMU280-70152		
LDW280M18039-11			1	LMU280-70152	A6	
LDW280M18040-11			1	LMU280-70152	A8	
LDW280M18295-11			1	LMU280-70152	A1	
LDW280M18296-11			1	LMU280-70152	A1	
LDW280M18313-11	SEE DWG	M-7 (48)	1	LMU280-70152	A1	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD5528 PKG 50

REASON FOR EO: M-7 TO BE USED FOR FUNCTIONAL CHECK OF 1/6 WEIGHT LRV DEPLOY.

DESCRIPTION OF EO: FOR * ADDED M-7 (48) REQMTS.

Ⓡ GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		M-7 (48)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GCO
APPROVED BY	RBF				WJK		RBF	
DATE	4-16-70			4/15/70	4/17/70		4-17-70	4/20/70

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1878

4-2 4-70
ISSUED BY C. LEBO X86048 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRU' MAN AEROSPACE CORPORATION
CODE IDENT NO. 26512
E. GINEERING ORDER

DWG. NO. LEO280 | EO NO. 1884
CONTROL INFO NO. LDW2?0C0386

FOR ALL DWGS LISTED BELOW ADD LTA-11(23) EFF. FOR NOTED DASH NOS. & NEXT ASSY'S.

DWG. NO.	NEXT ASSY	DWG. NOMENCLATURE	CHANGE NO.
✓ LDW280-60602-1	LDW280-60509	SEE DWG.	A1
✓ -18631-17,-23,-25	LDW280-60602	↑	B2
✓ -18780-11,-13,-15,-17,-18	↑		A2
-18781-11,-15,-17			A5
-60549-1,-7			A5
M17862-83			D1
M17804-23			B2
M18039-11			A8
M18040-11	↓	↓	A9
M18145-27	LDW280-60602	SEE DWG.	A7

QTY'S REMAIN THE SAME AS FOR LM-10(40).

*APPLICABLE DASH NOS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 5545 PKG 50

REASON FOR EO: DETAIL PARTS REQ'D FOR LTA-11(23) LRV DROP TESTS

DESCRIPTION OF EO: FOR(*) ADDED LTA-11(23) REQUIREMENTS

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	RSH				W/H		RSH	
DATE	5-22-70			5/22/70	5/22/70		5-22-70	5/22/70

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1884

5/22/70
ISSUED BY J. PEDERSEN/G. HANSMANN X87222 SECTION VDI
GROUP NO. 335 PL 25

01

NAS 9-1100

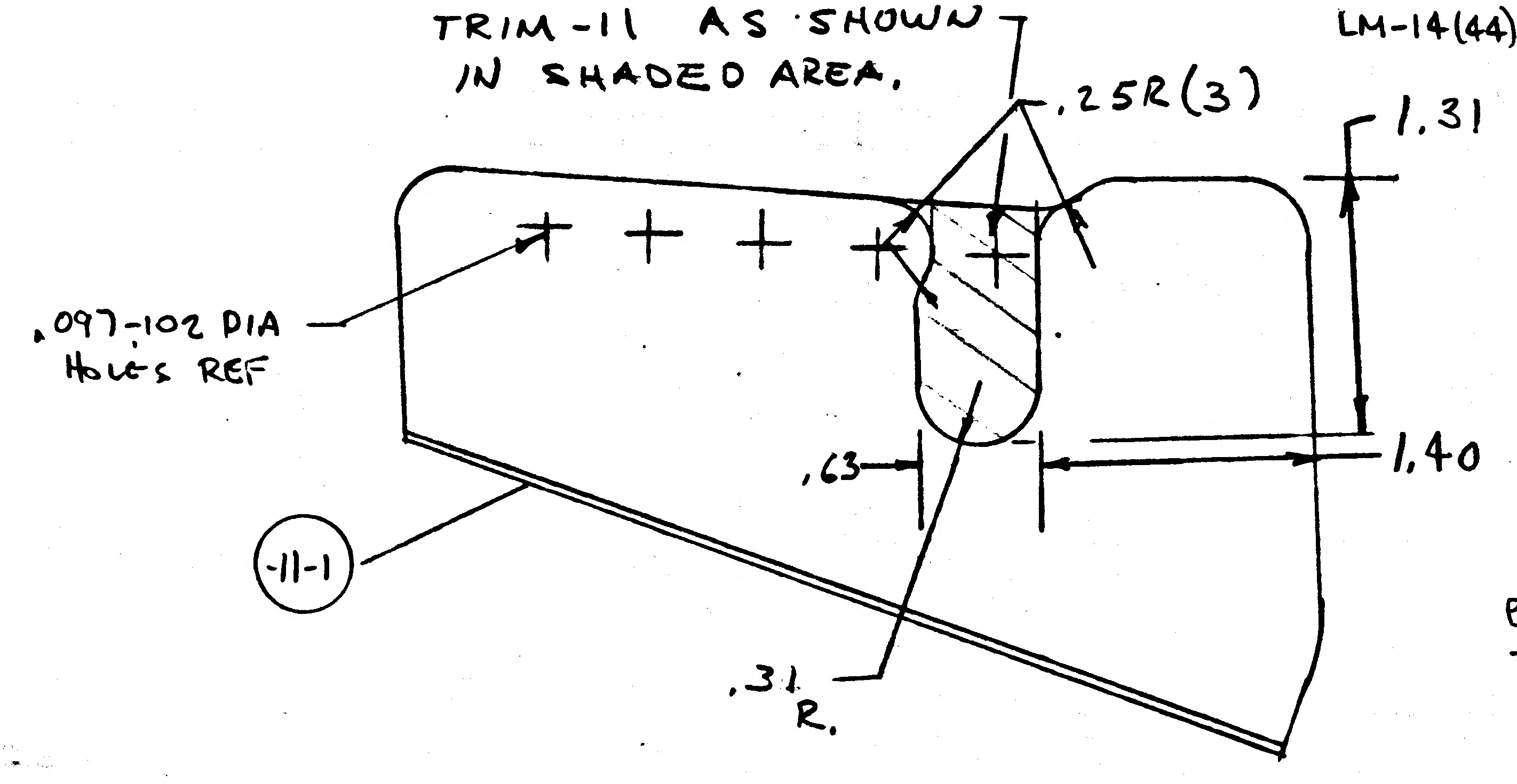
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18780
EO NO. A3
CONTROL INFO NO. LDW280C0748

CREATE -11-1 IDENT TO -11 EXCEPT AS NOTED, EFF LM-10(40) THRU LM-13(43) : 1 REQD/VEH
N/A LDW280-60602   REST ICT -11 TO LM-14(44), M-7(48) & LTA-11(23) WAS LM-10(40) THRU LM-14(44), M-7(48), & LTA-11(23)



BRUSH ALODINE FIN # 76 ON REWORKED AREAS

REWORK : -11-1 MAY BE MADE BY REWORKING -11

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 5601 PKG 50

REASON FOR EO: RELOCATION OF HELIUM VENT LINE RUN

DESCRIPTION OF EO: ADDED -11-1
RESTRICTED -11 TO LM-14(44), M-7(48), & LTA-11(23) EFF WAS LM-10(40) THRU LM-14(44), M-7(48) & LTA-11(23)

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10 (40)	
		THRU 13 (43)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PJH						PJH	
DATE	7-10-70			7/10/70	7/10/70		7-10-70	7/10/70

PRIORITY: C
DRAWING TITLE: ANGLE D/S-QUAD I - FWD BHD - LR V SUPT
DRAWING NO.: LDW280-18780
EO NO.: A3

CDR 7/10/70
ISSUED BY DON RAGAS / J. LANG X 87222 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18781

PART NO. LDW280-18781-13

LM	LDW340-56750	LM-14 (44)	2
		LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW340-56750	LM-10 (40)	2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60602	LM-10 (40)	1
PART NO. LDW280-18781-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW280-60602	LM-10 (40)	1
PART NO. LDW280-18781-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60602	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
LM	LDW 280-60602	LM-10 (40)	1
PART NO. LDW280-18781-11		GAEC SCH NO.	

WORK PACKAGE FUNCTION #110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00
REV	
SHEET	2.00
REV	
SHEET	3.00
REV	

LAST SECT LTR USED	~
LAST DASH NO. USED	-19

GRUMMAN ~~REF~~ INFO
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XXX±.010 .XX±.03 ±0°30'

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 5322 PKG 51

CONTRACT NO. NAS9-1100		LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	W. CONROY 3-16-70	MATLS	
LAYOUT BY	A. TIENKEN AT		
~~CHECKED~~ BY	S. BZALWINSKI 3-26-70		
GRP LEADER	3/31/70		
VEH DES INT	Thoyisen 3-31-70		
STRUCTURES	EK NM 4-1-70	PROJ ENGR	4/1/70
STRUCTURES	WJH 4/1/70	REL GROUP	4/3/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ZEE
DESCENT STAGE ~ QUAD I ~ LUNAR ROVER VEHICLE RELEASE MECH ~ SPT.

SIZE B	CODE IDENT NO. 26512	LDW280-18781
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 4-3-70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18781-17	E	TEE	AL ALLOY EXTRUSION	QQ-A-200/11	7075-T6511	GS183A13DG×2½	SEE NOTE 6	SEE NOTE 4,5	
		-15	↕	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.090×2×3	T6	NOTE 2	
		-13	↕	CLIP	TITANIUM SH	MIL-T-9046 TYPE III, COMP. C COND STA.	6AL-4V	.06 × 1 × 4½	NONE	NOTE 2	
		LDW280-18781-11	E	ZEE	AL ALLOY SH	QQ-A-250/12	7075	.032 × 3 × 14	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18781
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

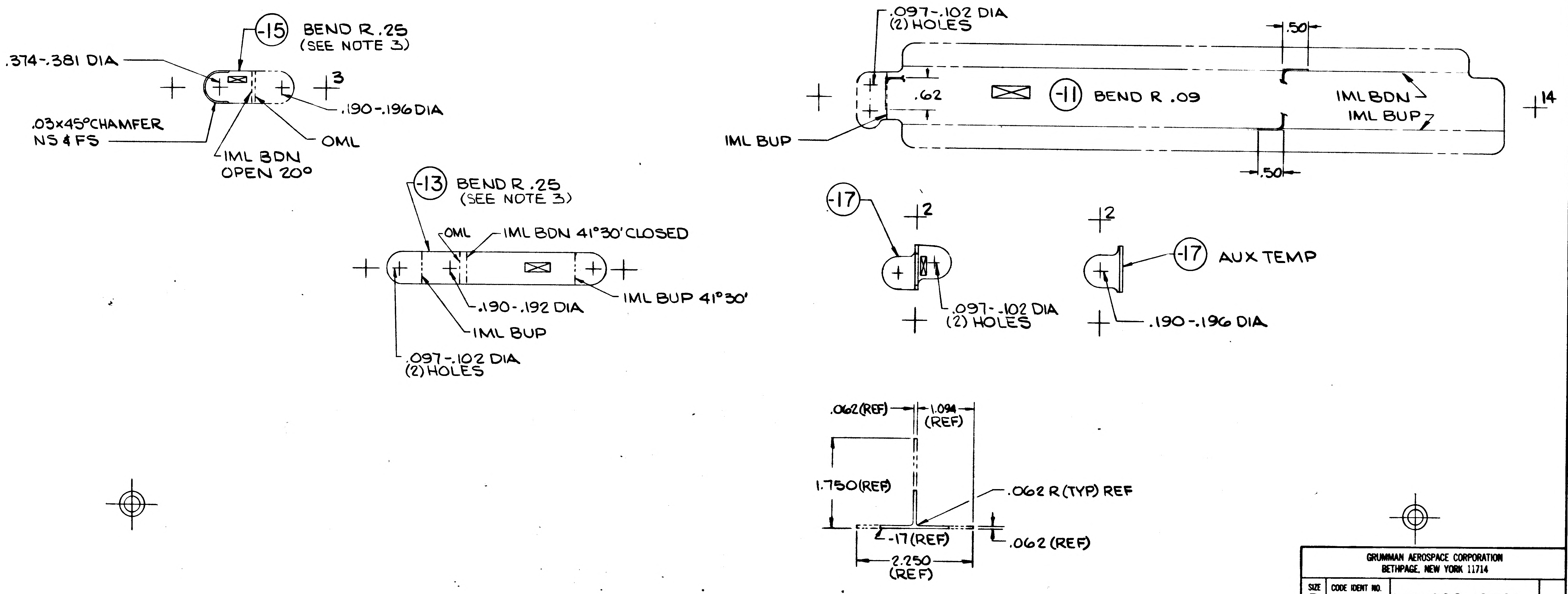
NAS 9-1100

LDW280-18781

TRAM O.K.
TS 3-13-70

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FINISH PER LSP 14-10300 TYPE II
3. CREW HAZARD: PARTS REQUIRE SPECIAL HANDLING TO INSURE REMOVAL OF ALL BURRS AND SHARP EDGES.
4. SULPHURIC ACID ANODIZE PER MIL-A-8625 TYPE II
5. AFTER SULPHURIC ACID ANODIZE PROTECTIVE COAT USING ONE COAT OF PRIMER MIL-P-23377 PER LSP 14-4305.
6. AGE TO T73511 PER LSP 14-5201. MECHANICAL PROPERTIES SPECIMENS ARE REQD.



-15 BEND R .25 (SEE NOTE 3)
.374-.381 DIA
3
.190-.196 DIA
.03x45° CHAMFER NS & FS
OML
IML BDN OPEN 20°
-13 BEND R .25 (SEE NOTE 3)
OML
IML BDN 41°30' CLOSED
.190-.192 DIA
IML BUP 41°30'
IML BUP
.097-.102 DIA (2) HOLES
.097-.102 DIA (2) HOLES
.50
.62
-11 BEND R .09
IML BDN
IML BUP
IML BUP
.50
14
-17
2
.097-.102 DIA (2) HOLES
2
-17 AUX TEMP
.190-.196 DIA
.062 (REF)
1.094 (REF)
1.750 (REF)
.062 R (TYP) REF
-17 (REF)
.062 (REF)
2.250 (REF)

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18781

SCALE FULL SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18781

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 18781		EO NO. A1
CONTROL INFO NO. LDW280C0292		

FOR-13

ADD: EFF: LTA-11(23) N/A LDW340-23750 (1)REQ/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3994 PKG #99

REASON FOR EO
SUPPORT BRACKET REQUIRED ON TEST ARTICLE (LTA-11).

DESCRIPTION OF EO
FOR-13
ADDED EFF: LTA-11(23) N/A LDW340-23750

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY	PSH				wks		RP	GM
DATE	4-7-70			4/7/70	4/7/70		4/7/70	4/7/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

GAEC EO RELEASE

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE DIS QUAD I LUNAR ROVER VEHICLE RELEASE MECHANISM	LDW280-18781	A1

04-07-70
ISSUED BY R. CLARK/G. HANSMANN 8-7222 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1878
CONTROL INFO NO. LDW280C0316

FOR DRAWINGS LISTED BELOW ADD M-7 MOCK-UP EFF.: R.2 THE NOTED NEXT ASSY'S.

DRAWING NO.*	TITLE	MODULE	REQ'D/VEH	NEXT ASSEMBLY	EO NO.	
LDW280M18226-11	SEE DWG	M-7 (48)	2	LMU280-70150	A3	✓
LDW280-18923-11	↑	↑	1	LMU280-70150	A4	✓
LDW280-18780-15			1	LMU280-70152	A1	✓
LDW280-18780-11			1			
LDW280M17817-12			1	LMU280-70154	B5	✓
LDW280-18631-17			2	LMU280-70152	B1	✓
LDW280-18631-23			1			
LDW280-18631-25			1			
LDW280-60549-1			1	LMU280-70152	A4	✓
LDW280-60549-7			1			
LDW280-18781-13			2	LMU280-70157	A2	✓
LDW280-18781-15			1	LMU280-70152		
LDW280M18039-11			1	LMU280-70152	A6	
LDW280M18040-11			1	LMU280-70152	A8	
LDW280M18295-11			1	LMU280-70152	A1	
LDW280M18296-11	↓	↓	1	LMU280-70152	A1	
LDW280M18313-11	SEE DWG	M-7 (48)	1	LMU280-70152	A1	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD5528 PKG 50

REASON FOR EO: M-7 TO BE USED FOR FUNCTIONAL CHECK OF 1/6 WEIGHT LRV DEPLOY.

DESCRIPTION OF EO: FOR * ADDED M-7 (48) REQMTS.

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		M-7 (48)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOP
APPROVED BY	PJF				wjr		PJF	
DATE	4-16-70			4/15/70	4/17/70		4-17-70	4/21/70

GAEC EO RELEASE ®

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1878

4-24-70
ISSUED BY C. LEBO X86048 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-18781
EO NO. A3
CONTROL INFO NO. LDW280C0382

ON - 13
ADD TM-5/R (65) EFF: N/A LTM280-50604 (1) REQ/MOD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 5504 PKG # 50

REASON FOR EO
RELOCATE MESA RELEASE HANDLE TO L.H. SIDE OF EGRESS/INGRESS PLATFORM

DESCRIPTION OF EO
ON-13
ADDED TM-5/R (65) EFF: N/A LTM280-50604

GAEC EO RELEASE: Ⓡ 4-23-70

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-5/R (65)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD	

APPROVED BY									
DATE	4-23-70			4/22/70	4/23/70		4/23/70	4/23/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOFT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE D/S - QUAD I LUNAR ROVER VEHICLE RELEASE MECH - SPT	LDW280-18781	A3

042370
ISSUED BY R. CLARK/G. HANSMANN X8-7222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-18781
EO NO. A4
CONTROL INFO NO. LM-5-22445

IN -13 MODEL BLOCK

ADD

1 REQ'D. ON TM-11(50) N/A SEE NOTE ✱

ADD NOTE ✱

✱. TO BE USED IN CONJUNCTION WITH LTP 905-21003.

✱ NEXT AVAILABLE NOTE

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG #8

REASON FOR EO: CLIP REQUIRED ON TEST ARTICLE (TM-11)(LTP905-21003)

DESCRIPTION OF EO: IN M/B FOR-13 ADDED TM-11(50) EFF. ADDED NOTE ✱

GAEC EO RELEASE: ®

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		TM-11 (50)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY					KC	CH		
DATE	5-8-70			5/8/70	5/1/70	5-1-70	5/8/70	5/8/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ZEE - D/S - QUAD I - LUNAR ROVER VEHICLE RELEASE MECH - SPT
DRAWING NO.: LDW 280-18781
EO NO.: A4

ISSUED BY LIAISON C. COSMA x 86755 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO280	EO NO. 1884
CONTROL INFO NO. LDW280C0386	

FOR ALL DWGS LISTED BELOW ADD LTA-11(23) EFF. FOR NOTED DASH NOS. & NEXT ASSY'S.

DWG. NO.	NEXT ASSY	DWG. NOMENCLATURE	CHANGE NO.
✓ LDW280-60602-1	LDW280-60509	SEE DWG.	A1
✓ -18631 -17,-23,-25	LDW280-60602	↑	B2
✓ -18780 -11,-13,-15,-17,-18	↑		A2
✓ -18781 -11,-15,-17			A5
-60549-1,-7			A5
M17862-83			D1
M17804-23			B2
M18039-11			A8
M18040-11	↓	↓	A9
M18145-27	LDW280-60602	SEE DWG.	A7

QTY'S REMAIN THE SAME AS FOR LM-10(40).

*APPLICABLE DASH NOS.

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD 5545 PKG 50	

REASON FOR EO	DESCRIPTION OF EO
DETAIL PARTS REQ'D FOR LTA-11(23) LRV DROP TESTS	FOR(*) ADDED LTA-11(23) REQUIREMENTS

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11(23)	

DRAWING CHANGE REQD	✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS	NOT REQD (REWORK / SCRAP)

APPROVED BY	RST				w/14		RST	
DATE	5-22-70			5/22/70	5/22/70		5-22-70	5/22/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GQC

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1884

5/22/70

ISSUED BY J. PEDERSEN/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-18781

EO NO. A6

CONTROL INFO NO. LDW280C0494

IN - 13 MOD / BLK

FOR LTA-11(23) EFFECTIVITY, N/A LDW340-23750,
1 REQD PER VEH SHOULD BE 3 REQD PER VEH

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 5545 PKG 50 PAGE 2

REASON FOR EO: ADD LRV RELEASE MECHANISM TO TEST ARTICLE

DESCRIPTION OF EO: FOR -13 N/A LDW340-23750 QTY. 3 REQD WAS 1 REQD

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

APPROVED BY	DSt								
DATE	5-27-70			5/28/70			5/28/70	7/1/70	
	VDI	CREW PROV	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C

DRAWING TITLE: ZEE -D/S- QUAD I LUNAR ROVER VEHICLE RELEASE MECHANISM

DRAWING NO.: LDW280-18781

EO NO.: A6

ISSUED BY 5/28/70 J. LANG / G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18781

EO NO. A7

CONTROL INFO NO. LM-5-23584

DESCRIPTION OF EO

IN-13 M/B

3 REQ'D. ON N/A LDW340-56750 EFF.

LM-10(40) THRU LM-12(43).

WAS 2 REQ'D.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3994

REASON FOR EO: TO AGREE WITH N/A REQUIREMENT

DESCRIPTION OF EO: NOTED ABOVE

Ⓔ GAEC EO RELEASE ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10	(40) THRU	LM-12(42)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD — REWORK | SCRAP

APPROVED BY	QH				KC	CH		Bauman
DATE	12-7-70			12/11/70	12/4/70	12-4-70	12/4/70	12-4-70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ZEE-D/S-QUAD I-LUNAR ROVER VEH. RELEASE MECH-SPT	LDW280-18781	A7

ISSUED BY LIAISON C. COSMA x9491 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1925
CONTROL INFO NO. LDW280C1334

FOR DRAWINGS * LISTED BELOW EFF LM-10(40) THRU LM-12(42) ; REVISE QTY\VEH *** FOR NEXT ASSY **

	DRAWING NO *	TITLE	NEXT ASSY **	*** REQD\VEH	CHANGE LETTER
✓	LDW280M18039-11	SEE	LDW280-60602	2(WAS)4	A9
✓	LDW280-12781-13	DRAWING	LDW340-56750	2(WAS)3	A8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 5680 PK 56

REASON FOR EO: DETAILS NOT REQD FOR MANUAL DEPLOYMENT OF LRV

DESCRIPTION OF EO: FOR (*), N/A (**), *** REQD/VEH.

GAEC EO RELEASE ② 3/14/71

MODEL	~~PROCURING ACTIVITY NO~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LFM 619	LM-10(40)	
		LM-11(41), LM-12(42)	
LM			

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY								
DATE	3-8-71	3-11-71		3/8/71	3/9/71		3/10/71	3-11-71
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1925

ISSUED BY 3-12-71 G.BELEV~G.HANSMANN X87222 SECTION VEH DES INT GROUP NO. 0335 PL 025

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1926
CONTROL INFO NO. LDW280C1333

FOR DRAWINGS(*) LISTED BELOW REMOVE LM-10(40) THRU LM-12(42) REQMTS FOR NEXT ASSY NOTED(**)

DRAWING NO *	TITLE	NEXT ASSY **	CHANGE LTR	
LDW280M18295-11	SEE DRAWING	LDW280-60602	A3	✓
LDW280M18299-13	↑	↑	A2	✓
LDW280M18313-11			A3	✓
LDW280-18631-25			B3	✓
LDW280-18781-17	↓	↓	A9	✓
LDW280-60549-1-1	SEE DRAWING	LDW280-60602	A8	
LDW280-19028-15,-16,-17	SEE DWG	LDW280-60571	A2	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 5680 PK 56

REASON FOR EO: DETAILS NOT REQD FOR MANUAL DEPLOYMENT OF LRV

DESCRIPTION OF EO: FOR * REMOVED LM-10(40) THRU LM-12(42) FOR N/A **

GAEC EO RELEASE 3/11/71

MODEL: LM

EFFECTIVITY
~~PROCURING ACTIVITY~~ NO. EI: LFM 619
GAEC UNIT NO.: LM-10(40) LM-11(41) LM-12(42)
SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CCP
APPROVED BY					NM			
DATE	3-8-71			3/8/71	3/9/71		3/10/71	3/11-71

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1926

ISSUED BY: 3-12-71 G.BELEV-G.HANSMANN X87222 SECTION: VEH DES INT GROUP NO. 0335 PL 025

01

NAS 9-1100

LDW280-18782

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23589	LTA-3DR/1(460)	2
PART NO. LDW280-18782-19		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LTA-3DR/1(460)	1EA
PART NO. LDW280-18782-13,-15,-17&-21		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54576	LTA-3DR/1(460)	2
PART NO. LDW280-18782-11		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00								
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED		GRUMMAN REL INFO		
LAST DASH NO. USED	-21	PRIM NO. 207		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XX=±.03, .XXX=±.010, ±0°30'

	ORIG DWG AUTH
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD3994 PKG90	

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J.BIANCHINO 12-25-70		
LAYOUT BY	J.PEDERSEN		
CHECKED BY	G.BAUMAN 12-25-70		
GP LEADER	JL 2/26/70		
VEH DES INT	Thorjusen 2-27-70		
STRUCTURES	NM 2-27-70	PROJ ENGR	Thorjusen 2-27-70
STRUCTURES	2/27/70	REL GROUP	Bauman 2-27-70 2/27/70

Ⓑ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOUBLER
DESCENT STAGE-LOWER DECK-SCIENTIFIC
EQUIPMENT BAY & ALSEP SIMULATOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18782
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 2-27-70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18782-21	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 X 4X4	NONE	76	
		LDW280-18782-19	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080 X 4 X 9	NONE	88	
		-17	↕	↕	↕	↕	↕	.016 X 2 X 3	↕	76	
		-15	↕	↕	↕	↕	↕	.040 X 3 X4	↕	↕	
		-13	↕	↕	↕	↕	↕	.080 X 3 X3	↕	↕	
		LDW280-18782-11	E	DOUBLER	AL ALLOY SH	QQ-A-250/12	7075-T6	.080X 3 X 3	NONE	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010
						33	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18782

SCALE NONE

SHEET 2.00

0

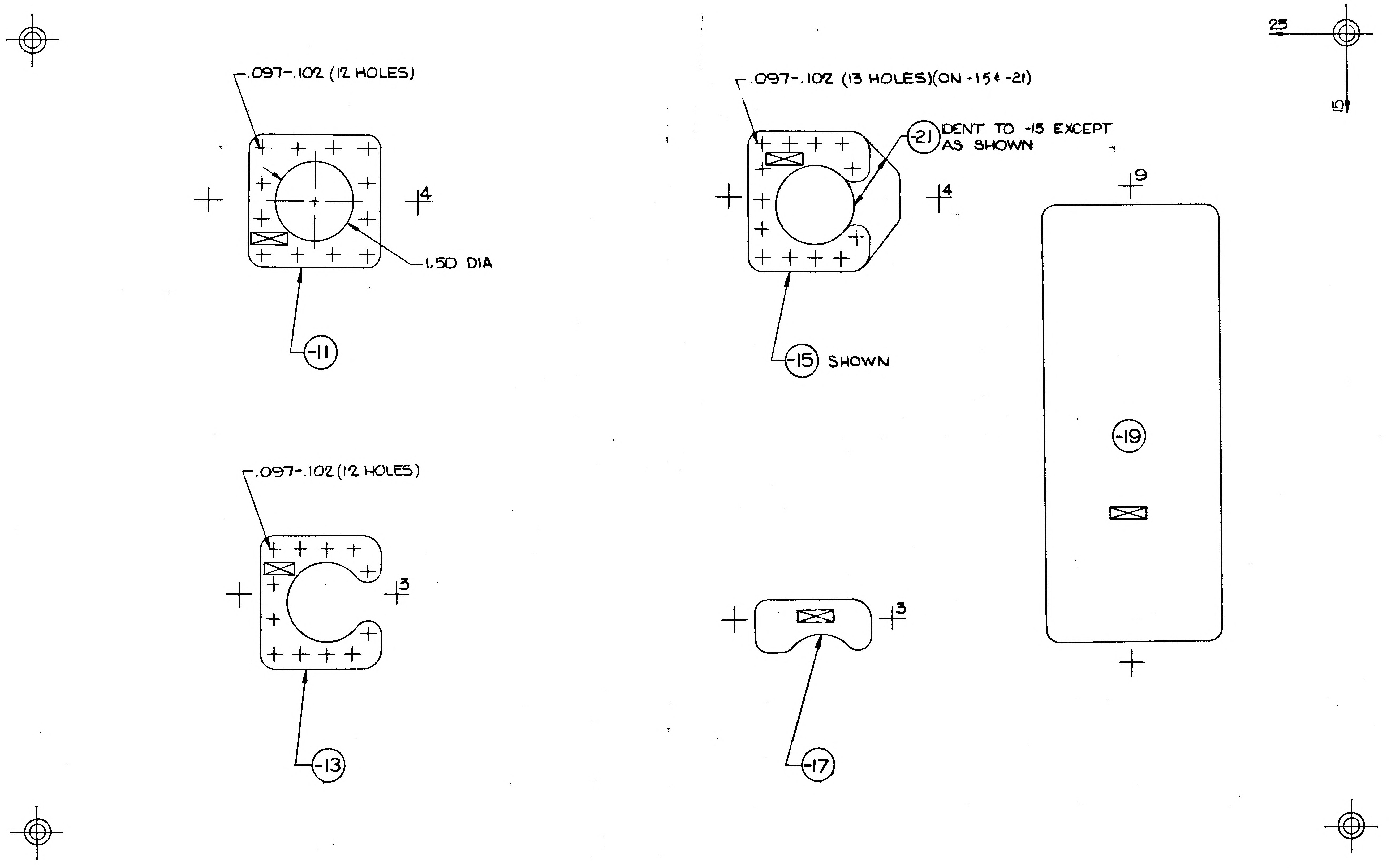
ENG 77.2 7-65

0 1

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATION 15 ± .03	✓

NOTE:
1. NO TOOLING HOLES PERMITTED IN PARTS.


.097-.102 (12 HOLES)
4
1.50 DIA
-11
.097-.102 (13 HOLES)(ON -15 & -21)
-21 IDENT TO -15 EXCEPT AS SHOWN
4
-15 SHOWN
25
15
9
-19
.097-.102 (12 HOLES)
3
-13
3
-17

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18782
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION K2

NAS 9-1100

LDW280-18784

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54791	LM-14 (44)	4
LM	LDW280-54791	LM-13 (43	4
		LM-12 (42)	4
		LM-11 (41	4
		LM-10 (40)	4
		LM-9 (39)	4
		LM-8 (38)	4
LM		LM-7 (37)	4
LFM410		LM-6 (36)	4
LFM410	LDW280-54791	LM-5 (35)	4

PART NO. LDW280-18784-11

WORK PACKAGE FUNCTION NO 110 (5)

DOCUMENTATION TYPE II

LINE ITEM

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	-	GRUMMAN REL INFO		
		PRIM NO.	VK(001)	
LAST DASH NO. USED	-11	207	ME-16	4/29/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.010 ±1/2°
ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓
LCD 3911 PKG 50	

CONTRACT NO. NAS 9-1100

DRAWN BY	F HIPPLER 4-16-69	RELIABILITY	
LAYOUT BY	G. BARNES GWB 4-21-69		
CHECKED BY	H. BERNSTEIN 4-17-69		
GR LEADER	Thorjusen 4-22-69		
VEH DES INT	[illegible] 4/24/69		
STRUCTURES		PROJ ENGR	J. Lusateri 4/25/69
STRUCTURES	WJH 4/24/69	REL GROUP	L. Marsh 4-28-69
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP
DESCENT STAGE - GIMBAL DRIVE
ACTUATOR - IMPEDENCE BOX

SIZE	CODE IDENT NO.	LDW280-18784
B	26512	
SCALE	NONE	SHEET 1.00 OF 3

CDR 4-25-69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18784-11	E	CLIP	AL ALLOY SH	QQ-A-250/12	7075	.050 x 2 x 2	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL H-6088
88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18784

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

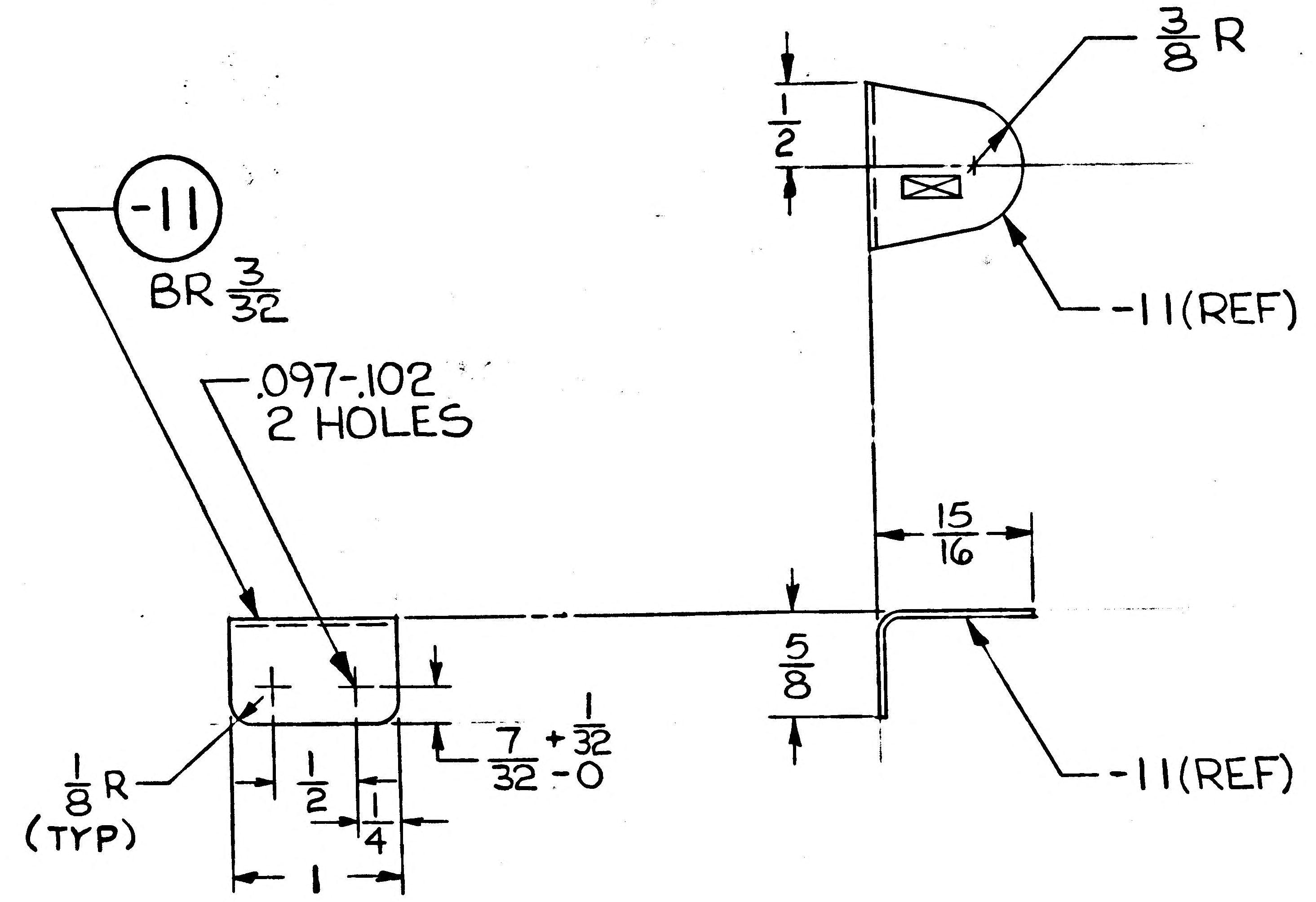
01

NAS 9-1100

ENG 771.2 4-67

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS



-11
BR 3/32
.097-.102
2 HOLES
1/8 R
(TYP)
1/2
1/4
1
7/32 +1/32 -0
3/8 R
1/2
-11(REF)
15/16
5/8
-11(REF)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE B	CODE IDENT NO. 26512	LDW280-18784
SCALE FULL		SHEET 3.00

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18784 | EO NO. A1
CONTROL INFO NO. LDW280B7801

FOR -11 EFF LM-5(35) & LM-6(36) (ONLY)
N/A S/B LDW 200-55506
WAS LDW 280-54791

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3911 PKG 50 (5)

REASON FOR EO: ADDITION OF GIMBAL DRIVE ACTUATOR IMPEDENCE BOX

DESCRIPTION OF EO: FOR -11 EFF LM-5(35) & LM-6(36) N/A LDW200-55506 WAS LDW 280-54791

GAEC EO RELEASE: S&B 4-30-69; JK 5/1/69

MODEL	E.I. PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 410	LM-5(35) & LM-6(36	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COP~~
DATE	4/30/69			4/30/69	4/30/69		5/2/69	5-1-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	D/S GDA CLIP IMPEDENCE BOX	LDW280-18784	A1

CDR 5/5/69
ISSUED BY G. BARNES / P. THORJUSEN X86047 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

NO. LEO 280
EO NO. 1644
CONTROL INFO NO. LDW280B8306

FOR ALL PART NUMBERS EFFECTIVE ON LM-10 (40) ADD LTA-11 (23) REQUIREMENTS WITH THE SAME NEXT ASSEMBLY AND QUANITY.

DRAWING № *	TITLE	CHANGE №
LDW280-17890	SEE DWG	C1
973		B3
997		B2
18036		C1
062		B1
—		
—		
784		A2
810		B1
LDW280-18858	SEE DWG	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PKG 99 PG 91 & 92 (5)

REASON FOR EO: NEW DYNAMIC TEST VEHICLE REQ'D FOR EXTENDED TANKS

DESCRIPTION OF EO: ON * ADDED LTA-11 (23) REQMTS

GAEC EO RELEASE: 8-27-69; JK 8/28/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GRUP
APPROVED BY	PGF				N			
DATE	7-30-?			7/31/69	8-2-69			8/27/69
	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWINGS	LEO 280	1644

9-26-69 ISSUED BY G. HANSMANN X87222 (ZF) SECTION VDI GROUP NO 335 PL 25

01

NAS 9-1100

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 1766

CONTROL INFO NO. LDW280B9000

IN MOD BLK FOR THE FOLLOWING DWGS & DASH NO'S

REVISE N/A LDW280-60791 WAS LDW280-54791

FOR LM 10(40) THRU 14(44)

REMOVE LTA 11 (23) EFF)

DWG. NO.	DASH NO.	TITLE	CHG. NO.
LDW280-18238 ✓	-13	SEE DWG	A4
LDW280-18784 ✓	-11	SEE DWG	A3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994- PK89	(5)

REASON FOR EO: REVISE N/A FOR LMMP

DESCRIPTION OF EO:
IN MOD BLK
REVISED N/A LDW280-60791 WAS LDW280-54791
FOR LM10(40) THRU 14(44)
REMOVED LTA 11 (23) EFF

GAEC EO RELEASE: SALB 11-22-69; 11/23/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40) THRU 14 (44)	
LM		LTA 11 (23)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	88t				NM			
DATE	11-21-69			11/21/69	11/21/69		11/22/69	11-24-69

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	1766

CDR 112669

ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18785

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11468	DVT (72)	2 EA
LM	LSK280-11468	DFT (71)	1 EA
LM	LDW280-60501	LM-14 (44)	1 EA
↑	↑	LM-13 (43)	1 EA
		LM-12 (42)	1 EA
↓	↓	LM-11 (41)	1 EA
LM	LDW280-60501	LM-10 (40)	1 EA

PART NO. LDW280-18785-11,-13-17 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11468	DVT (72)	4 EA
LM	LSK280-11468	DFT (71)	2 EA
LM	LDW280-60501	LM-14 (44)	2 EA
↑	↑	LM-13 (43)	2 EA
		LM-12 (42)	2 EA
↓	↓	LM-11 (41)	2 EA
LM	LDW280-60501	LM-10 (40)	2 EA

PART NO. LDW280-18785-15&-19. | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO. | GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—
LAST DASH NO. USED	-19

GRUMMAN REL INFO

PRIM NO.	JK (001)		
207	ME-16	1/19/70	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
.XX ±.030 .XXX ±.010 ±0°-30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD 3994 PKG 58

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. VICINANZA 1/6/70	RELIABILITY	
LAYOUT BY	P. LANDRY PFL 1/13/70		
CHECKED BY	L. Cathay 1/7/70		
GP LEADER	DSR JW Hawkins 1/16/70		
VEH. DES. INT.	Thorpensen 1-16-70		
STRUCTURE	NM	PROJ ENGR	Thorpensen 1-16-70
STRUCTURE	WJH 1-16-70	REL GROUP	Bauman
			1/17/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ANGLE
DESCENT STAGE ~ QUAD IV
GUILLOTINE BLAST DEFLECTOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-18785

SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

1-16-70

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18785-19	E	CLIP	AL ALLOY SH.	QQ-A-250/12	7075	.032x2x3	T6	88	
		-17	↕	PLATE	↕	↕	7075-T6	.032x2x2	NONE	88	
		-15	↕	ANGLE	↕	↕	7075	.032x2x17	T6	88	
		-13	↕	CHANNEL	↕	↕	7075	.063x4x4	T6	88	
		LDW280-18785-11	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.032x3x5	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
T6	AL HEAT TREAT	MIL-H-6088
88	ANODIZE	LSP-14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18785

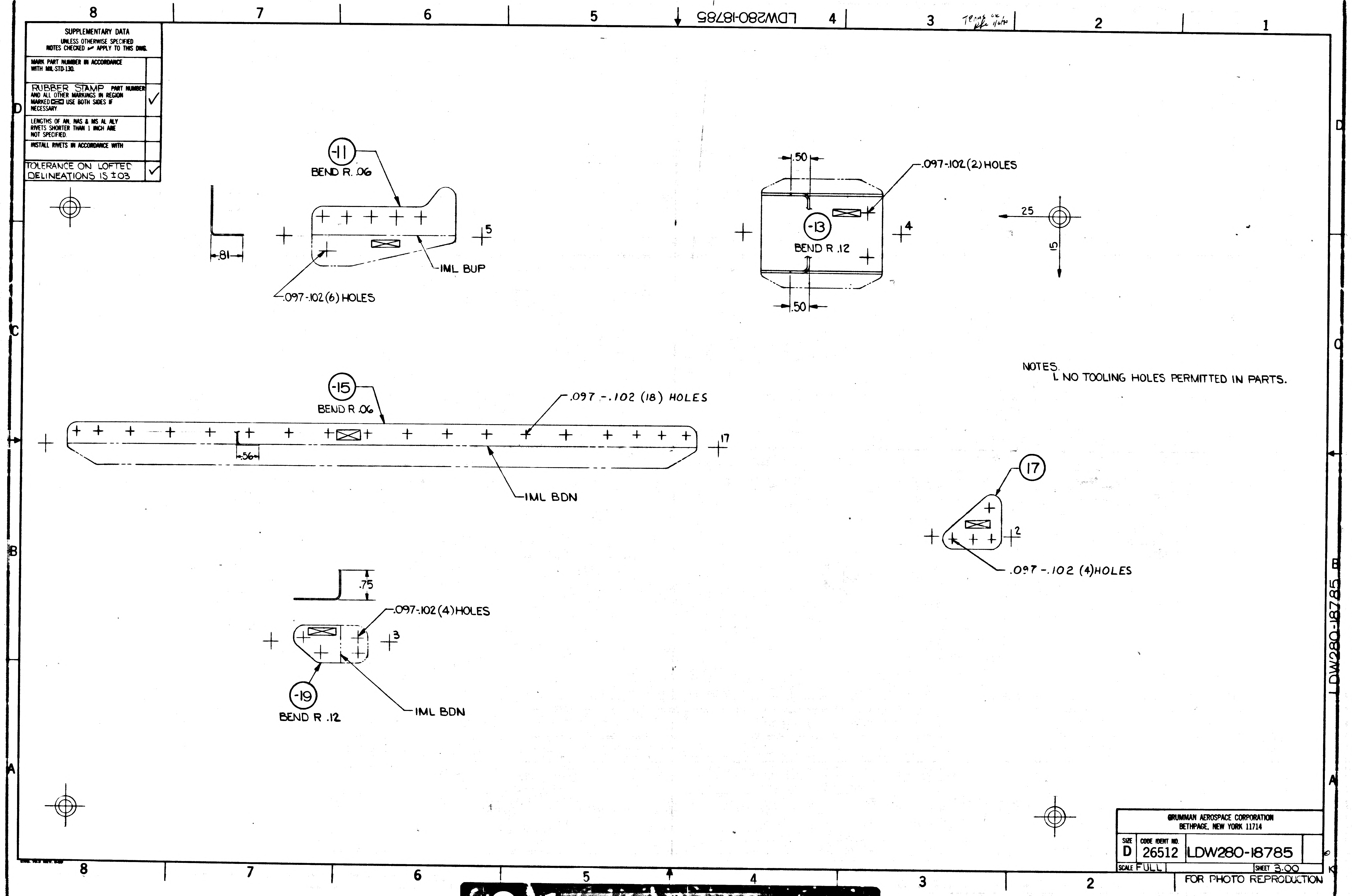
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


LDW280-18785
-11
BEND R .06
.81
.097-.102 (6) HOLES
IML BUP
5
-13
BEND R .12
.50
.097-.102 (2) HOLES
4
25
15
-15
BEND R .06
.097 -.102 (18) HOLES
.56
IML BDN
17
17
.097 -.102 (4) HOLES
2
.75
.097-.102 (4) HOLES
3
-19
BEND R .12
IML BDN
LDW280-18785

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTES.
1. NO TOOLING HOLES PERMITTED IN PARTS.

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18785
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18785		EO NO. A1
CONTROL INFO NO. LDW280B9941		

IN F/D & B/M

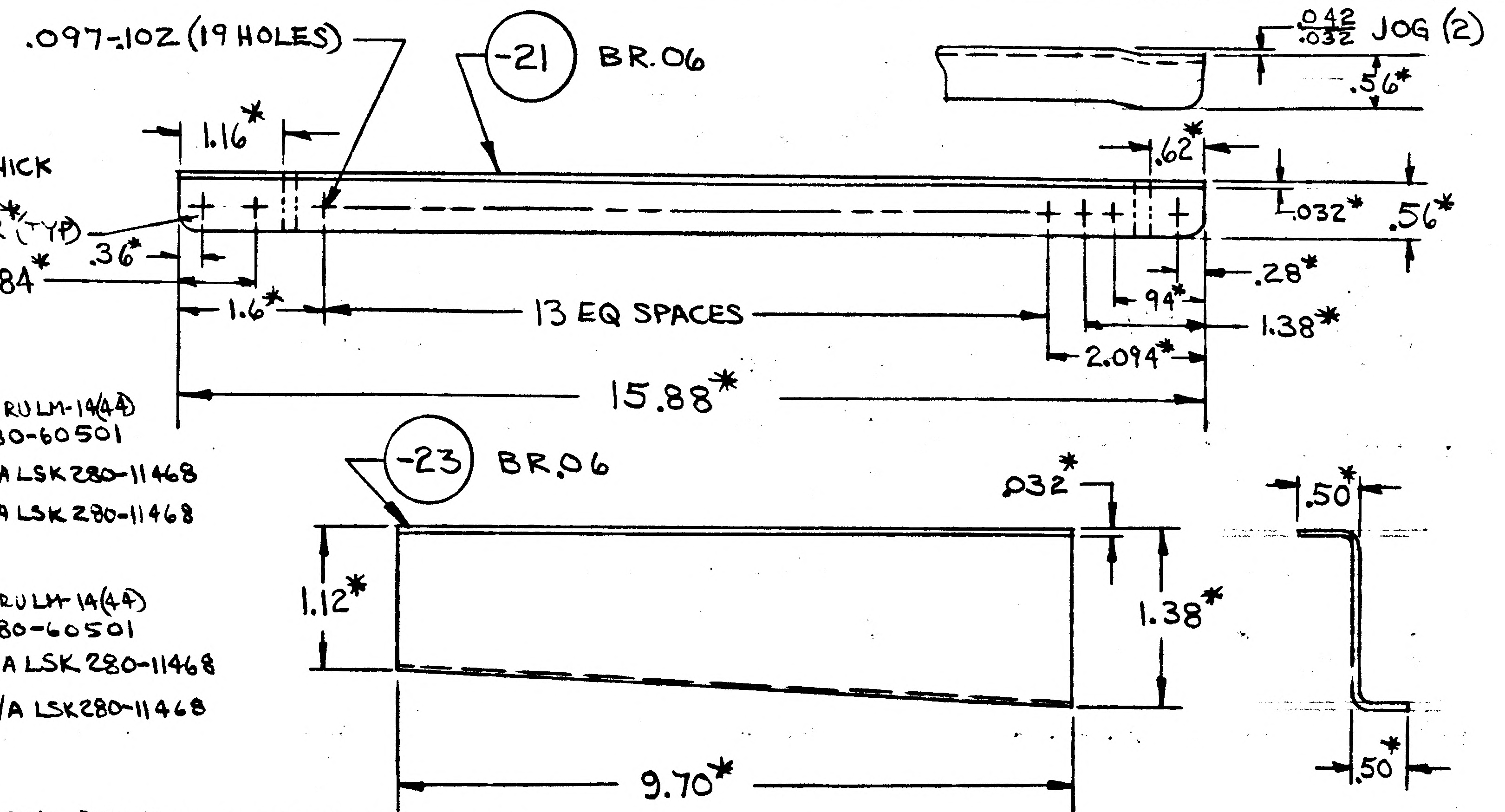
DELETE -15(2)

ADD. -21 & -23

MAKE FROM. .032 THICK
AL ALLOY SH.
QQ-A-250/12
7075
• HEAT TREAT -T6
FINISH #88

-21
(2 REQD/MOD) LM-10(40) THRU LM-14(44)
N/A LDW280-60501
(2 REQD/MOD) DFT(71) N/A LSK280-11468
(4 REQD/MOD) DVT(72) N/A LSK280-11468

-23
(1 REQD/MOD) LM-10(40) THRU LM-14(44)
N/A LDW280-60501
(1 REQD/MOD) DFT(71) N/A LSK280-11468
(2 REQD/MOD) DVT(72) N/A LSK280-11468



* PARTS TO BE LOFTED DIM FOR DRAFTSMAN ONLY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 ·:G58 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN FOR EASE OF SHIELD INSTL	DELETED -15 ADDED -21, -23	2/17/70

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM	LM-10(40) THRU LM-14(44)		
LM	DFT (71)		
LM	DVT (72)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			-15 ✓	DATE	2-11-70			2/19/70	2/16/70		2/16/70	2/16/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE D/S QUAD IV GUILLOTINE BLAST DEFLECTOR	LDW280-18785	A1

CDR 2/16/70
ISSUED BY VINCENT CHRISTINA X87222 SECTION VDI GROUP NO. 335 PL25

01

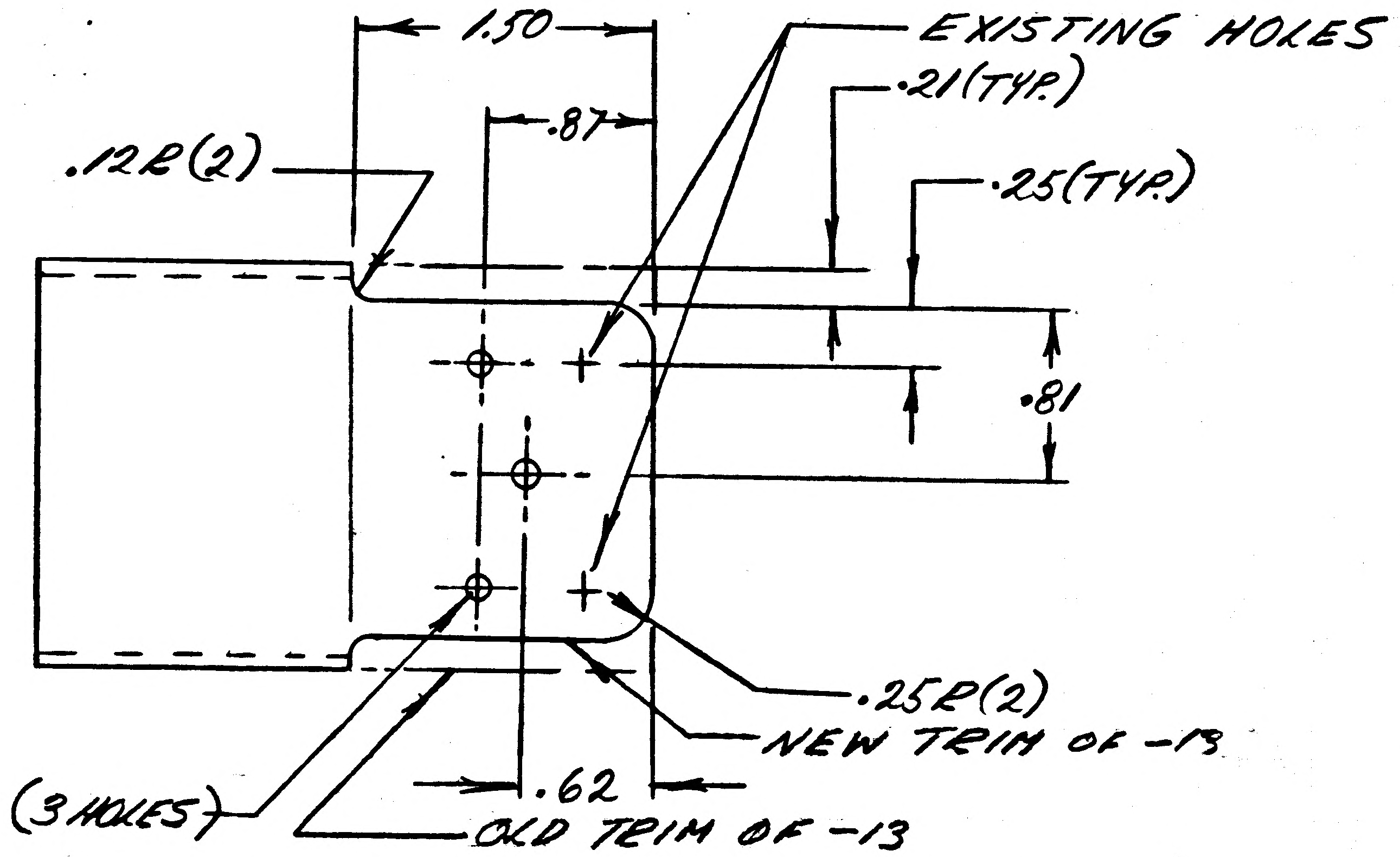
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18785	EO NO. A2
CONTROL INFO NO. LM-5-22693	

ON-13



TRIM-13 AS SHOWN. LOFTED PART-ALL DIM'S. FOR REF. ONLY.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 3994

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERENCE ON INSTL.	TRIMMED -13 & ADDED (3) (.097-.102) HOLES,	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM10 (40)	
		THRU	
		LM14 (44)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	PJH				KC	CR	PJH	
DATE	6-5-70			6/4/70	5/28/70	5/28/70	6-5-70	6/4/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE - D/S QUAD. IV GUILLOTINE BLAST DEFLECTOR	LDW280-18785	A2

ISSUED BY LIAISON R. Grell, X86755 SECTION VOI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18785

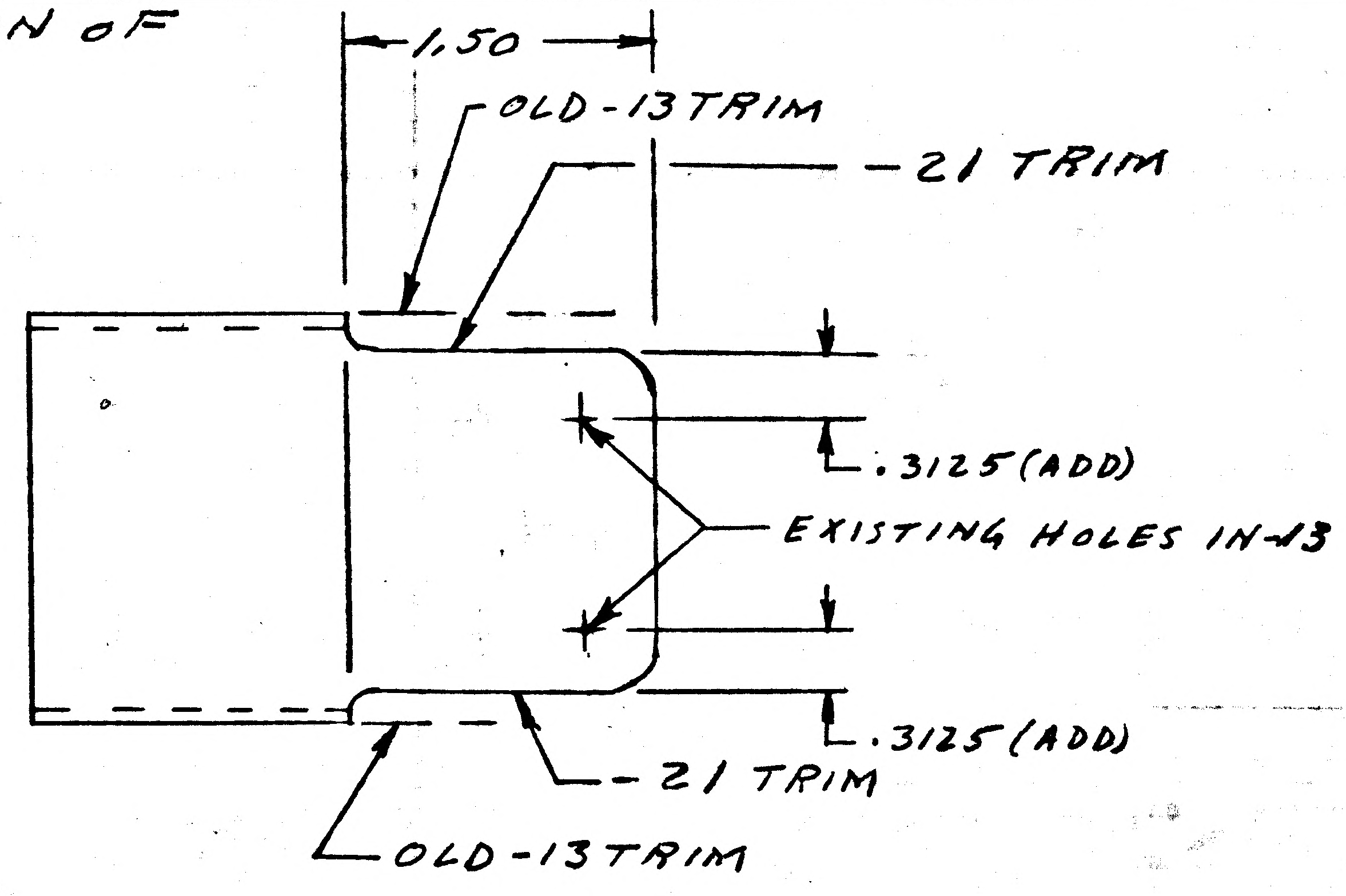
EO NO. A3

CONTROL INFO NO. LM-5-22869

THIS IS A REVISION OF EO A2

IN FIELD M/B & B/M REPLACE -13 WITH -21 FOR N/A LDW280-60501

CREATE -21 IDENT. TO -13 (PRIOR TO EO A2) EXCEPT AS NOTED



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2994

REASON FOR EO: INCREASE EDGE DIST. FOR GB511K-08-2 (2) ON INSTL- DD4(3) REMOVED ON INSTL.

DESCRIPTION OF EO REF EO A2: IN FIELD, M/B & B/M REPLACED -13 WITH -21 FOR N/A LDW280-60501

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10 (40) THRU LM-13 (43)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	PJT			DR Kl.	caw	CH	PJT	
DATE	7-13-70			7/13/70	6/24/70	6-24-70	7-13-70	6/25/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ANGLE - D/S - QUAD IV GUILLOTINE BLAST DEFLECTOR	LDW280-18785	A3

ISSUED BY LIAISON C. COSMA 86755 SECTION V.D.I. GROUP NO. 335 PL 25

GRUMMAN AEROSPACE CORPORATION

CODE IDENT NO. 26512

ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. NOTED
EO NO.
CONTROL INFO NO. LM-5-22883

REF. EO LDW280-18785-A3 & EO LDW280-60501A6

LDW280-18785-21
S/B
LDW280-18785-25

DWG. NO	EO NO
LDW 280-18785	A4
N.H.A. DWG NO	
LDW280-60501	A7

N.H.A DISCRIPTION OF EO
REF. EO A6
LDW 280-18785-25 WAS LDW280-18785-21

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994

REASON FOR EO
LDW280-18785-21 & -23
CREATED BY EO LDW280-18785-A1

DESCRIPTION OF EO
REF EO A3
LDW280-18785-25
WAS LDW280-18785-21

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-10(40) THRU LM-13(43)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		NOT	REQD	APPROVED BY					CR		
				DATE	7-13-70			7/13/70	6/25/70	7-13-70	6/25/70
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C

DRAWING TITLE: ANGLE-DIS-QUAD IV GUILLOTINE-BLAST DEFLECTOR

DRAWING NO.: NOTED

EO NO.

ISSUED BY LIAISON C. COSMA x86755 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18786

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11468	DVT(72)	2 EA
LM	LSK280-11468	DFT(71)	1 EA
LM	LDW280-60501	LM-14(44)	1 EA
↑	↑	LM-13(43)	1 EA
		LM-12(42)	1 EA
↓	↓	LM-11(41)	1 EA
LM	LDW280-60501	LM-10(40)	1 EA
PART NO. LDW280-18786-11 & -13			

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00					
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED
LAST DASH NO. USED -13
GRUMMAN ~~REL~~ INFO
PRIM NO. 207 | JV(001) ME-16- 1/19/70

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES
.XX ±.03 .XXX ±.010 ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PKG 58

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY J. VICINANZA 1/7/70
LAYOUT BY P. LANDRY PFL 1/13/70
CHECKED BY Ben Maccacorno 1-13-70
GP LEADER 1/16/70
VEH DES INT Thorjusen 1-16-70
STRUCTURE NM
STRUCTURE wjd 1-16-70
PROJ ENGR Thorjusen 1-16-70
REL GROUP 1/17/70

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER
DESCENT STAGE QUAD IV
GUILLOTINE BLAST DEFLECTOR

SIZE B | CODE IDENT NO. 26512 | LDW280-18786
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 011670

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18786-13	E	ANGLE	AL ALLOY SH.	QQ-A-250/12	7075	.063 x 2 x 5	T6	88	
								LDW280-18786-11	E	SHIELD	AL ALLOY SH.	QQ-A-250/12	7075	.032 x 20 x 24	T6	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18786

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

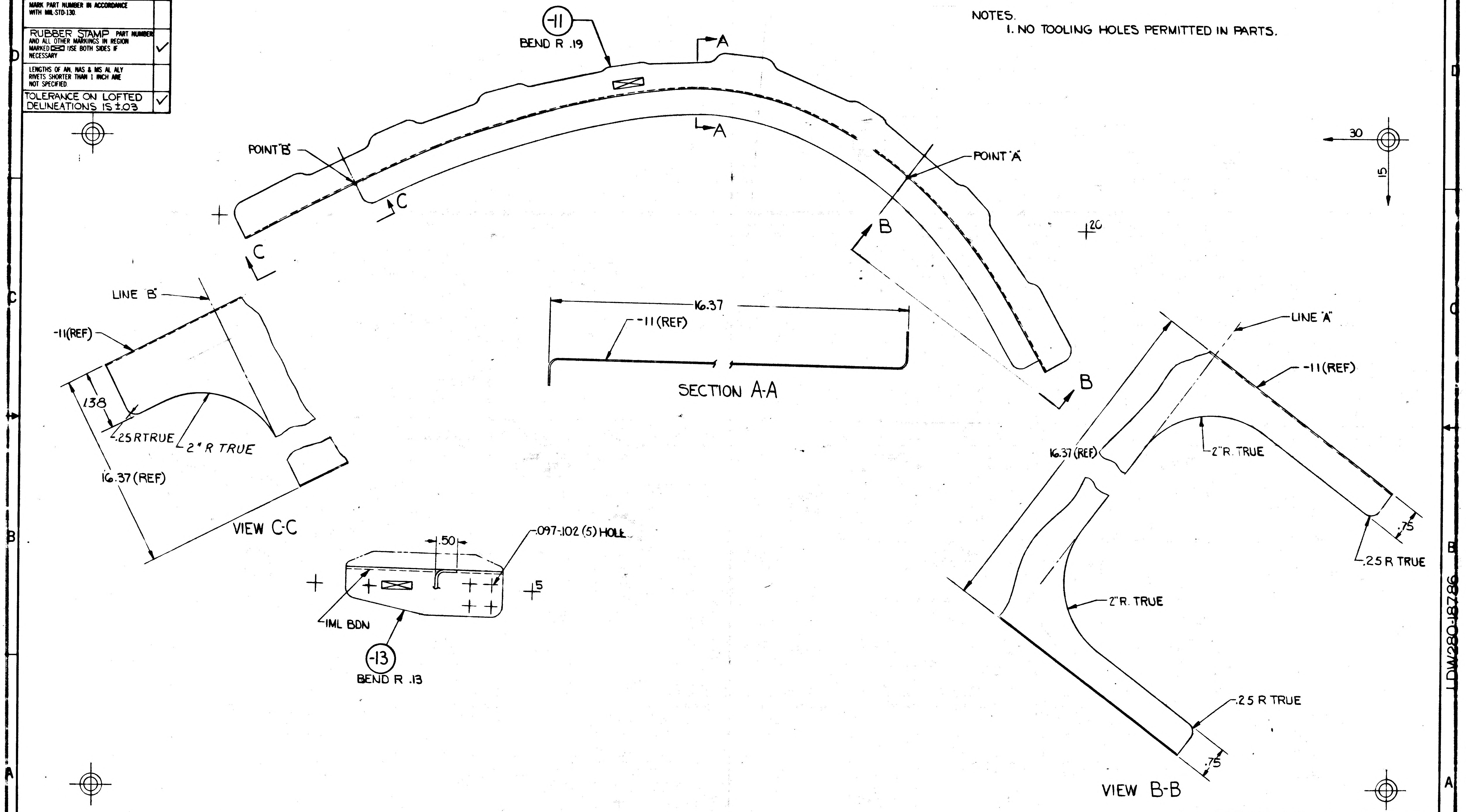
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTES.

1. NO TOOLING HOLES PERMITTED IN PARTS.


LDW280-18786
-11
BEND R .19
A
A
POINT 'B'
POINT 'A'
C
C
B
B
30
15
20
LINE 'B'
-11 (REF)
.138
.25 R TRUE
2" R TRUE
16.37 (REF)
VIEW C-C
16.37
-11 (REF)
SECTION A-A
.50
.097-.102 (5) HOLE
IML BDN
-13
BEND R .13
5
LINE 'A'
-11 (REF)
16.37 (REF)
2" R. TRUE
.75
.25 R TRUE
2" R. TRUE
.25 R TRUE
.75
VIEW B-B

GRUMMAN AEROSPACE CORPORATION BETHPAGE, NEW YORK 11714			
SIZE D	CODE IDENT NO. 26512	LDW280-18786	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

01

NAS 9-1100

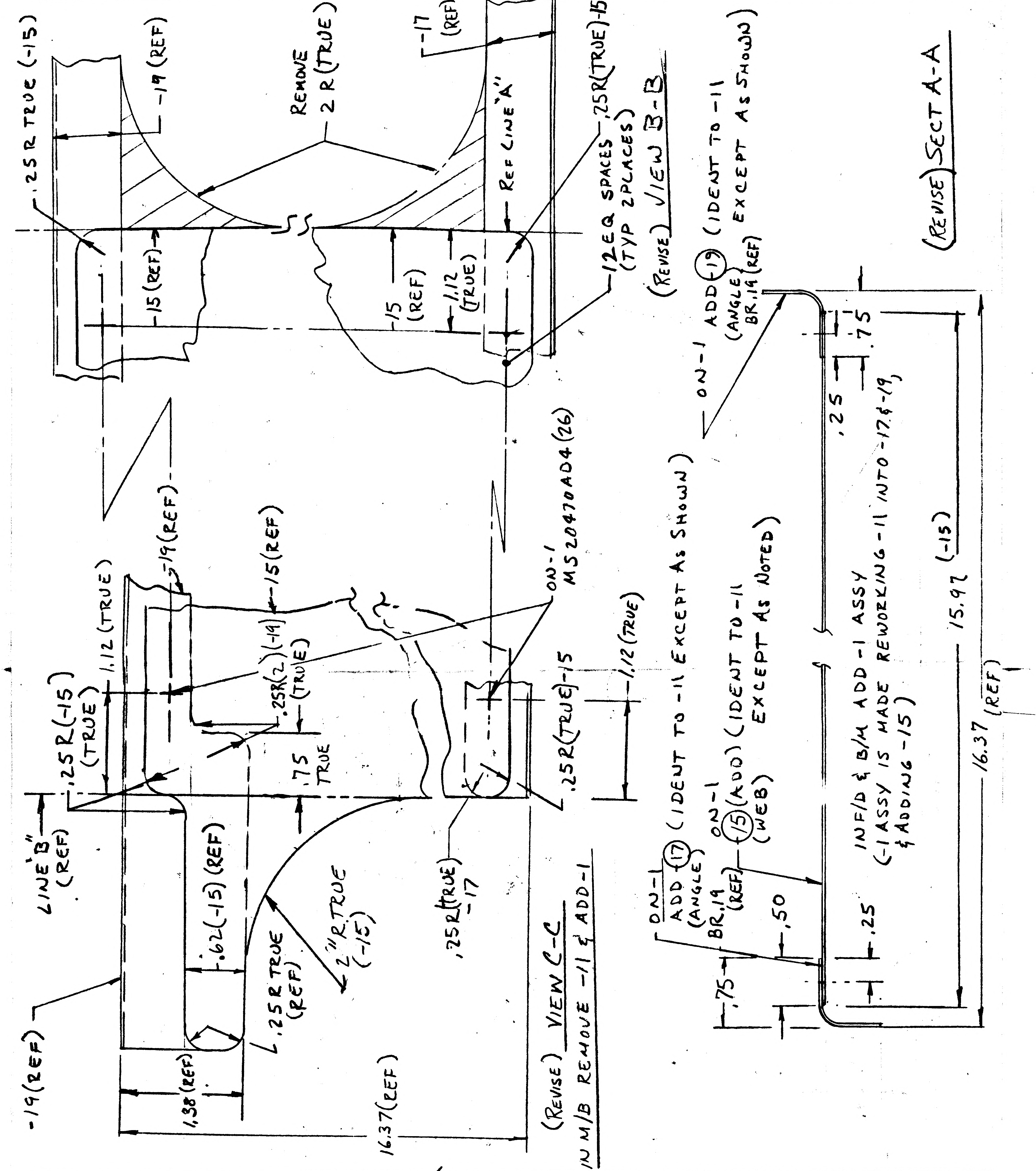
01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18786		EO NO. A1
CONTROL INFO NO. LDW280 B9894		



.25R TRUE (-15)
-19 (REF)
REMOVE 2 R (TRUE)
-17 (REF)
REF LINE "A"
-15 (REF)
-15 (REF)
1.12 (TRUE)
12 EQ SPACES .25R (TRUE) -15 (TYP 2 PLACES)
(REVISE) VIEW B-B
ON-1 ADD -19 (IDENT TO -11 EXCEPT AS SHOWN) (ANGLE) BR.14 (REF)
(REVISE) SECT A-A
.75
.25
INF/D & B/M ADD -1 ASSY (-1 ASSY IS MADE REWORKING -11 INTO -17 & -19, & ADDING -15)
15.97 (-15)
16.37 (REF)
ON-1 ADD -17 (IDENT TO -11 EXCEPT AS SHOWN) (ANGLE) BR.19 (REF)
ON-1 -15 (ADD) (IDENT TO -11 EXCEPT AS NOTED) (WEB)
.50
.25
.75
-19 (REF)
1.12 (TRUE)
-15 (REF)
.25R (2) (-19) (TRUE)
.25R (-15) (TRUE)
.75 TRUE
LINE "B" (REF)
ON-1 MS20470AD4 (26)
.25R (TRUE) -15
1.12 (TRUE)
.62 (-15) (REF)
2" R TRUE (-15)
.25R TRUE (REF)
.25R (TRUE) -17
-19 (REF)
1.38 (REF)
16.37 (REF)
(REVISE) VIEW C-C
IN M/B REMOVE -11 & ADD -1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3994 PK58

REASON FOR EO: TO FACILITATE MANUFACTURING OF DETAIL PARTS

DESCRIPTION OF EO: IN F/D, B/M & M/B ADDED -1 ASSY REMOVED -11 ON-1 ADDED -15, -17 & -19,

(5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU 14	
LM		DVT (72)	
LM		DVT (71)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS		
✓	✓-11		
REVISE DWG	RECORD EO	REWORK	SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					WV			
DATE	2-4-70			2/3/70	2/4/70		2-4-70	2/5/70
	VD1							

GAEC EO RELEASE: JK 2/5/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER D/S - QUAD IV - GUILLOTINE SHIELD	LDW280-18786	A1

CDR 020670
ISSUED BY Don Ragas X87222 SECTION VD1 GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

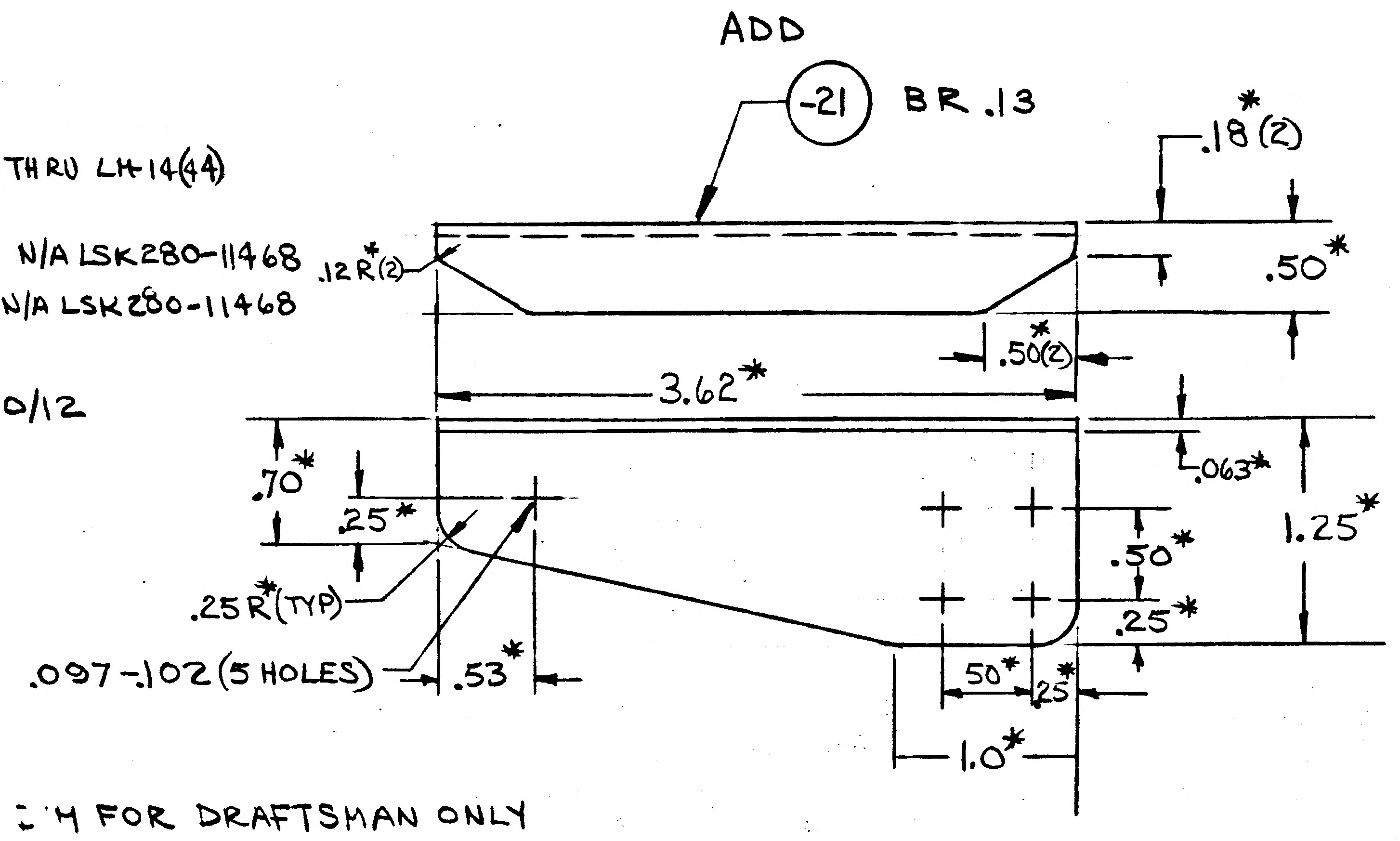
DWG. NO. LDW280-18786 | EO NO A2

CONTROL INFO NO. LDW280B9942

IN F/D & B/M
DELETE -13

ADD-21
(1 REQD/MOD) FOR LM-10(40) THRU LM-14(44)
N/A LDW280-60501
(1 REQD/MOD) FOR DFT(71) N/A LSK280-11468
(2 REQD/MOD) FOR DVT(72) N/A LSK280-11468

MAKE FROM:
AL ALLOY SH, QQ-A-250/12
7075
HEAT TREAT -T6
FINISH #88
.063 THICK
I&T=E



* PART TO BE LOFTED 1:1 M FOR DRAFTSMAN ONLY

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD 3994 PKG 58 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN FOR EASE OF SHIELD INSTL.	DELETED -13 ADDED-21	® K 2/17/70

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB ~~CONTR UNIT NO.~~
LM	LM-10 (40)	THRU LM-14 (44)	
LM	DFT (71)		
LM	DVT (72)		

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: REWORK | -13 ✓ SCRAP

APPROVED BY				NM			
DATE	2-11-70			2/10/70	2/16/70		2/16/70	2/16/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY C

DRAWING TITLE: COVER - D15 - QUAD IV GUILLOTINE BLAST DEFLECTOR

DRAWING NO. LDW280-18786

EO NO. A2

CDR 2/16/70
ISSUED BY VINCENT CHRISTINA X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18792

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14 (44)	2
↕	↕	LM-13 (43)	2
		LM-12 (42)	2
		LM-11 (41)	2
LM	LDW280-60503	LM-10 (40)	2

PART NO. LDW280-18792-47

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14 (44)	3
↕	↕	LM-13 (43)	3
		LM-12 (42)	3
		LM-11 (41)	3
LM	LDW280-60503	LM-10 (40)	3

PART NO. LDW280-18792-45

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14 (44)	1 EA
↕	↕	LM-13 (43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60503	LM-10 (40)	1 EA

PART NO. LDW280-18792-11,-13,-15,-17,-19,-21,-23,-25,-27,-29,-31,-33,-35,-37,-39,-41 & -43

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -47

GRUMMAN ~~REL~~ INFO

PRIM NO.	VC(001)
207	ME-16-12/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
~~TOLERANCE~~ UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
XX±.030 XXX±.010 ±0°30′

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	✓

LCD3890 PKG # 58

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	MASONE 12-4-69	THERMO	Mukant 12/17/69
~~LAYOUT~~ BY	V. CHRISTINA		
CHECKED BY	J. Coll 12-17-69		
GR LEADER	W. [illegible] 12/5/69		
VEH DES INT	Thompson 12-16-69		
STRUCT		PROJ ENGR	[illegible] 12/15/69
STRUCT	N. MARKELOFF 12-14-69	REL GROUP	[illegible] 12-19-69

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENTSTAGE ~ FITH SHIELD +R
SUPPORT

SIZE	CODE IDENT NO.	
B	26512	LDW280-18792

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 12·19·69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18792-47	E	STRAP	AL ALLOY SH	QQ-A-250 12	7075-T6	.025x2x3	NONE	88	
		-45						.025x2x4	NONE		
		-43						.025x2x6	NONE		
		-41						040x2x4	NONE		
		39						.040x2x20	NONE		
		-37						.040x2x12	NONE		
		-35						.040x2x20	NONE		
		-33						.040x2x40	NONE		
		-31						.040x2x56	NONE		
		-29						.040x2x45	NONE		
		-27						.040x2x7	NONE		
		-25						.040x2x3	NONE		
		-23						.040x2x19	NONE		
		-21						.040x2x21	NONE		
		-19						.040x2x63	NONE		
		-17						.040x2x66	NONE		
		-15						.040x2x3	NONE		
		-13						.040x2x25	NONE		
		LDW280-18792-11	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040x2x24	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18792

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

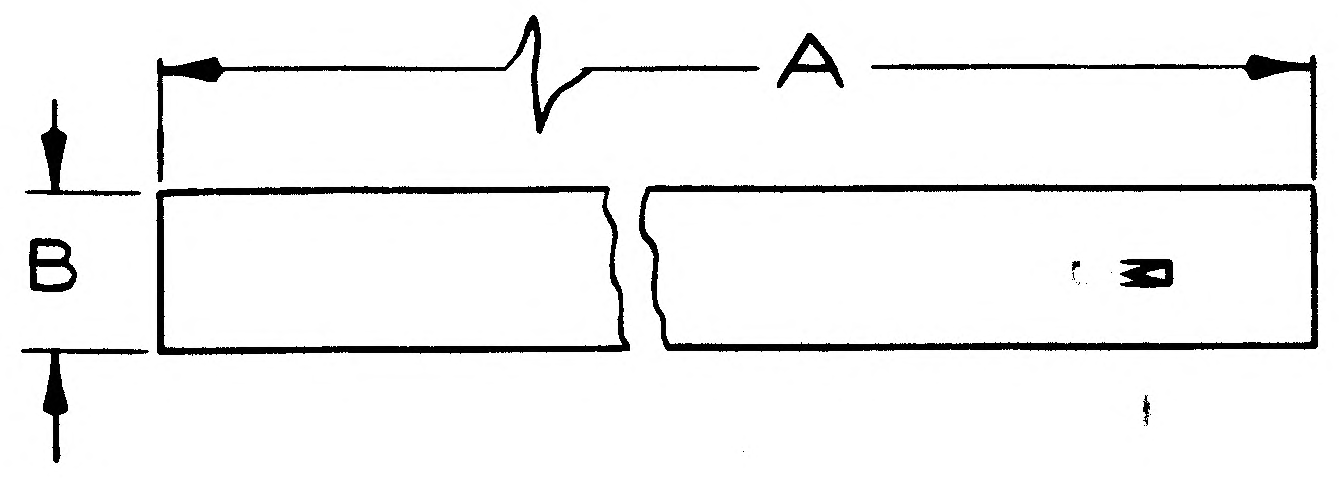
01

NAS 9-1100

[illegible]

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐



NOTES:
1 NO TOOLING HOLES PERMITTED IN PARTS

DASH NO.	A	B
-11	22.81	.63
-13	24.16	.63
-15	2.68	.63
-17	61.19	.63
-19	59.19	.63
-21	19.94	.63
-23	16.75	.63
-25	1.94	.63
-27	5.83	.63
-29	43.95	.63
-31	55.46	.63
-33	39.34	.63
-35	18.69	.81
-37	11.09	.81
-39	18.63	.81
-41	3.20	.63
-43	4.82	.63
-45	2.63	.63
-47	2.50	.63

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
C	26512	LDW280-18792

SCALE FULL
SHEET 3.00

LDW280-18792

LDW280-18792

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18792 | EO NO. A1

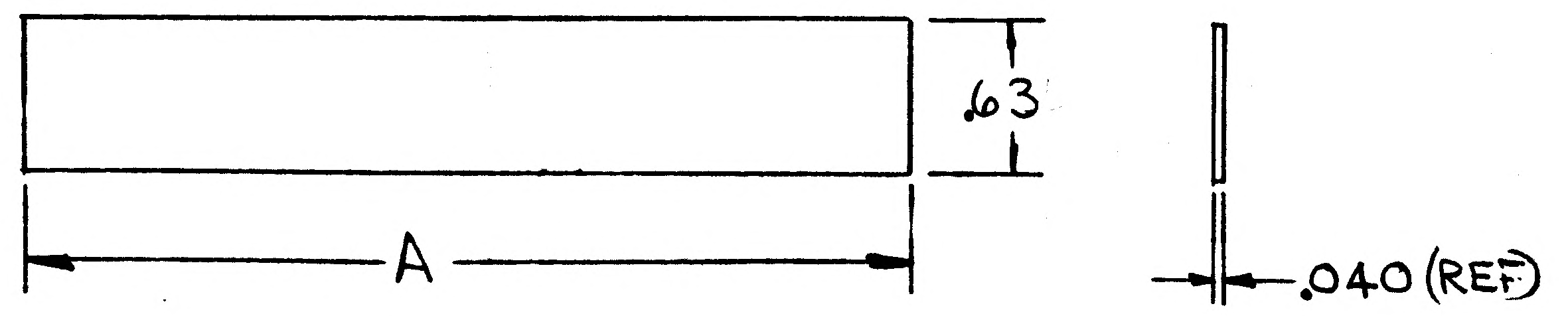
CONTROL INFO NO. LDW280C0007

ADD

DASH NO.	A	QTY/MOD
-49	40	4
-51	48	4

N/A LDW280-60514
EFF LM-10(40) THRU LM-14(44)

MATL:
AL ALLOY SH. .040 THICK
QQ-A-250/12
7075-T6
FINISH #88
I&T=E



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3890 PKG 58	(5)

REASON FOR EO: ALUM. STRAPS REPLACING FIBERGLASS TO PRECLUDE FRAING

DESCRIPTION OF EO: ADDED -49 (4), -51 (4)

GAEC EO RELEASE: K 2/25/70

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	2-25-70	2/25/70		2/25/70	2/25/70		2-25-70	2/25/70
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S FITH SHIELD - SUPPORT	LDW280-18792	A1

CDR 022670
ISSUED BY VINCENT CHRISTINA X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18792 | EO NO. A2
CONTROL INFO NO. LDW280C0130

IN F/D & B/M

DELETE -41(1) & -43(1) N/A LDW 280-60503

ADD -53(1) & -55(1) N/A LDW 280-60503

-53 & -55 IDENT TO -41 & -43 RESP EXCEPT

-53 & -55 EACH .040 THICK

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG58

REASON FOR EO: PROVIDE SUFFICIENT THICKNESS FOR CSK RIVET HEADS "MWC"

DESCRIPTION OF EO: IN F/D & B/M DELETED -41 & -43 ADDED -53 & -55

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10 (40)	
		THRU	
		LM-14 (44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-41 -43 ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	PBT				NM			
DATE	3-10-70			3/10/70	3/11/70		3/12/70	3/13/70

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S QUAD - FITH SHIELD	LDW280-18792	A2

CDR 3/13/70
ISSUED BY VINCENT CHRISTINA X86048 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -18792		EO NO. A3
CONTROL INFO NO. LDW280C0283		

IN F/D, B/M & MOD BLK: ADD: -29-1 & -29-2, -31-1 & -31-2 IDENTICAL TO -29 & -31 RESPECTIVLY EXCEPT AS NOTED
ADD -57 IDENTICAL TO -29 EXCEPT AS NOTED

NEXT ASSY FOR -29-1, -29-2, -31-1 & 31-2 LDW280-60503 LM10(40) 1 EACH REQD/MOD

REVISE DATA BOX AS SHN

NEXT ASSY FOR -57 LDW280-60503 LM-10(40) 2 REQD/MOD

DASH #	"A"	"B"
-29-1	23.25	.63
-29-2	18.80	.63
-31-1	35.75	.63
31-2	18.75	.63
-57	3.84	.63

REMOVE: -29 & -31 LM-10 & SUB

* FOR REWORK -29-1 & -29-2 MAY BE MADE FROM -29
-31-1 & -31-2 " " " " -31

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3890 PK 58

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH GOX TANK & FITH SHIELD QUAD II

DESCRIPTION OF EO: IN F/D B/M & MOD BLK ADDED -29-1, -29-2, -31-1, & -31-2 (1 EACH REQ) -57 (2 REQD) FOR LM-10 (40). REMOVED -29 & -31 LM-10(40) & SUB N/A LDW280-60503

GAEC EO RELEASE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40)	
		THRU LM-14 (44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	*✓ REWORK	SCRAP

APPROVED BY					NM W/H			
DATE	4-6-70			4/6/70	4/6/70		4/6/70	4/6/70
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S FITH SHIELD SUPT	LDW280-18792	A3

CDR 040670
ISSUED BY Don Ragas 287222 SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

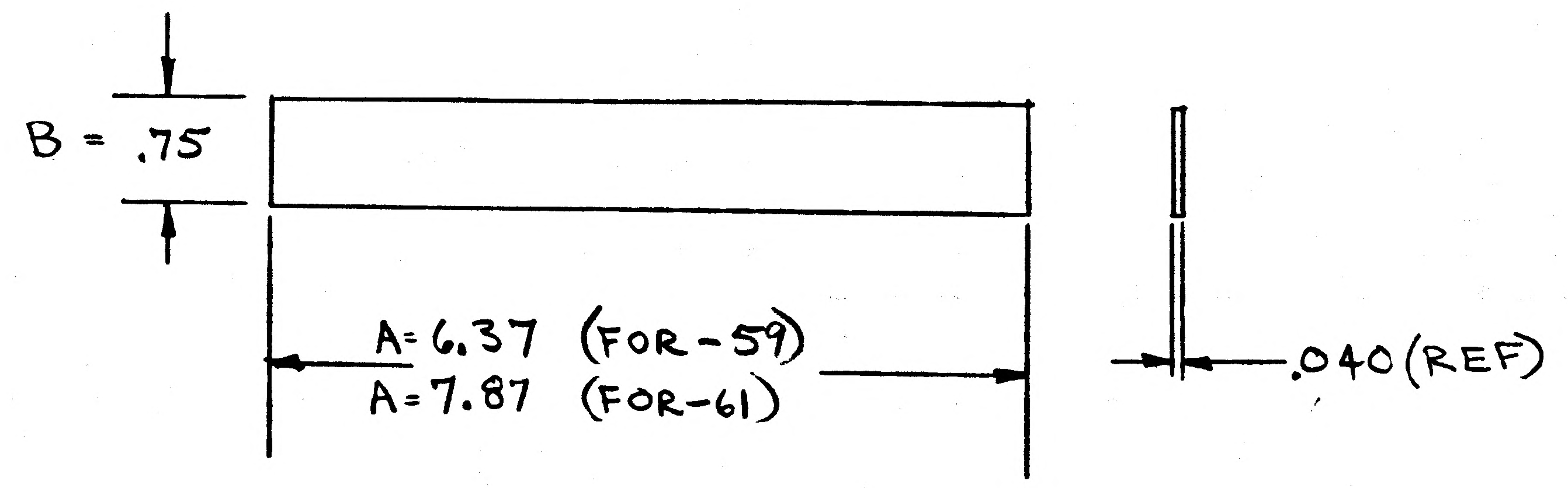
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-18792 EO NO. A4
CONTROL INFO NO. LDW280C0295

IN F/D & M/B
ADD -59 (2 REQD/MOD) N/A LDW280-53512
-61 (1 REQD/MOD) N/A LDW280-53512
MATL AL ALLOY SH, QQ-A-250/12, 7075-T6, FINISH 88, .040 THICK



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	J	LCD 3890 PKG 58

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH FUEL LINES "MWC"

DESCRIPTION OF EO: IN F/D & M/B ADDED -59 (2), -61 (1)

GAEC EO RELEASE

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQD — REWORK / SCRAP

APPROVED BY					NM			
DATE	4-8-70	4/13/70		4/8/70	4/9/70		4/9/70	4/10/70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP D/S FITH SHIELD SUPPORT	LDW280-18792	A4

CDR 4/10/70
ISSUED BY VINCENT CHRISTINA X87222 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-

DWG. NO. LDW280-18792
EO NO. A5
CONTROL INFO NO. LDW280C0287

IN DATA BOX

FOR -31-1 "A" DIM : 35.75 S/B 34.75

IN MOD BLK FOR -29-1, -29-2, -31-1 & -31-2 & -57

ADD LM11 (41) THRU 14(44) REQMTS N/A LDW280-60503

QTY SAME AS LM10 (40) N/A LDW280-60503

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3890 PK58

REASON FOR EO: CORRECT DIMENSION CALLOUT & ADD DETAIL REQMTS.

DESCRIPTION OF EO: IN DATA BOX FOR -31-1 "A" DIM 34.75 WAS 35.75 IN M/B FOR -29-1, -29-2, -31-1, -31-2, & -57 ADDED LM-11 (41) THRU LM-14 (44) REQMTS N/A LDW 280-60503

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 10(40)	
		THRU 14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY					NM			
DATE	4/16/70			4/16/70	4/16/70		4-17-70	4/17/70

PRIORITY: C
DRAWING TITLE: STRAP D/S - FITH SHIELD SUPT
DRAWING NO.: LDW280-18792
EO NO.: A5

CDR 04.17.70
ISSUED BY Don Ragas 87222 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-18793

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14(44)	1 EA
↕	↕	LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60503	LM-10(40)	1 EA

PART NO. LDW280-18793-11, -13 -15; -17 & -19 | GAEC SCH NO.

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REF INFO

PRIM NO. 207 JK(001) ME-16 12/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
~~FRACTIONS~~ - DECIMALS – ANGLES
XX=±.03, XXX=±.010, ±0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3890 PK# 58

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. LITVINOFF 12-9-69	THERMO	12/19/69
LAYOUT BY	D. RAGAS DR		
CHECKED BY	BEN MAG. 12-10-69		
GR LEADER	12/16/69		
VEH DES INT	Thorjusen 12-16-69		
STRUCT	NM 12-19-69	PROJ ENGR	12/19/69
STRUCT	N. MARKELOFF 12-19-69	REL GROUP	12/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE ~ QUAD IV ~
UPPER ~ FITH SHIELD

SIZE B | CODE IDENT NO. 26512 | LDW280-18793

SCALE NONE | SHEET 1.00 OF 3

77.1 12-65

CDR 12·19·69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18793-19	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040x 2 X 40	NONE	88	
		-17	↕	↕	↕	↕	↕	.040x 3 : 16	↕	↕	
		-15	↕	↕	↕	↕	↕	.040x 2 x 12	↕	↕	
		-13	↕	↕	↕	↕	↕	.040x 5 x 25	↕	↕	
		LDW280-18793-11	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040x 6 x 30	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18793

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

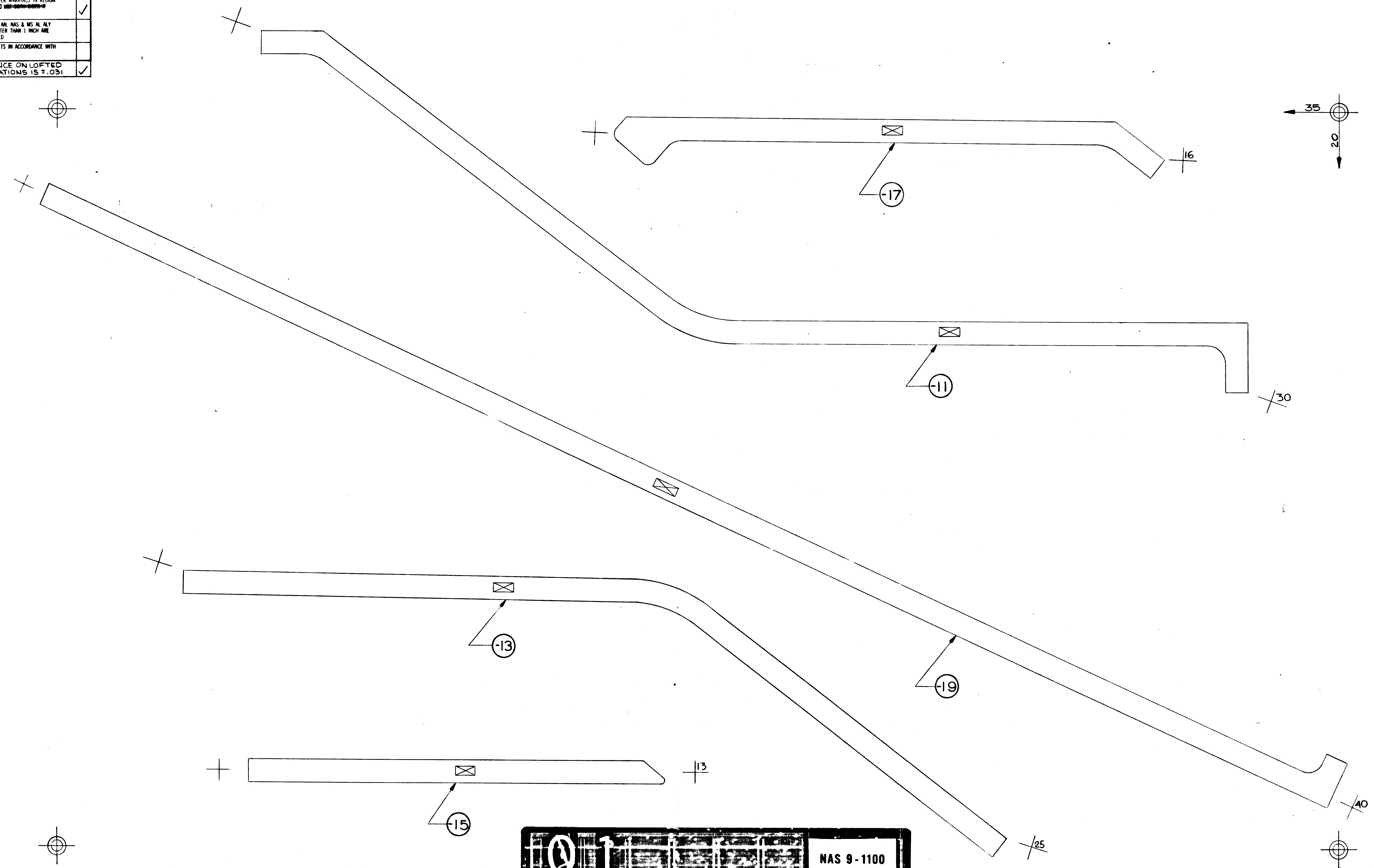
NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL STD 130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.031	✓

NOTES.

1 NO TOOLING HOLES PERMITTED IN PARTS.



NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18793

SCALE FULL SHEET 3.00

ENG 73.5 REV 5-67

FOR PHOTO REPRODUCTION

LDW280-18794

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14(44)	1 EA
↕	↕	LM-13(43)	1 EA
↕	↕	LM-12 (42)	1 EA
↕	↕	LM-11 (41)	1 EA
LM	LDW 280-60503	LM-10(40)	1 EA

PART NO. LDW280-18794-11, -13, -15, -17, & -19 | GAEC SCH NO.

WORK PKG FUNCTION NO, 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED		GRUMMAN ~~RELINFO~~		
LAST DASH NO. USED	-19	PRIM NO.	JK(001)	
		207	ME-16	12/19/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
XX=±.03 XXX=±.010, 0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE V
LCD3890 PKG 58

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 12-8-69	THERMO	12/19/69
LAYOUT BY	D. RAGAS DR 12-1-69		
CHECKED BY	BEN MAG. 12-17-69		
GR LEADER	12/16/69		
VEH DES INT	12-16-69		
STRUCT	NN 12-19-69	PROJ ENGR	12/15/69
STRUCT	N.MARKELOFF 12/19/69	REL GROUP	12/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE - QUAD IV -
R.H. - FITH SHIELD

SIZE B | CODE IDENT NO. 26512 | LDW280-18794
SCALE NONE | SHEET 1.00 OF 3

CDR 12·19·69 -

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								LDW280-18794-19	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.040 x 2 x 4	NONE	88	
								-17	↑	STRAP	↑	↑	↑	.040 x 6 x 27	↑	↑	
								↕ -15	↕	↑	↕	↕	↕	.040 x 6 x 25	↕	↕	
								-13	↓	↓	↓	↓	↓	.040 x 7 x 14	↓	↓	
								LDW280-18794-11	E	STRAP	ALL ALLOY SH	QQ-A-250/12	7075-T6	.040 x 3 x 12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-18794

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

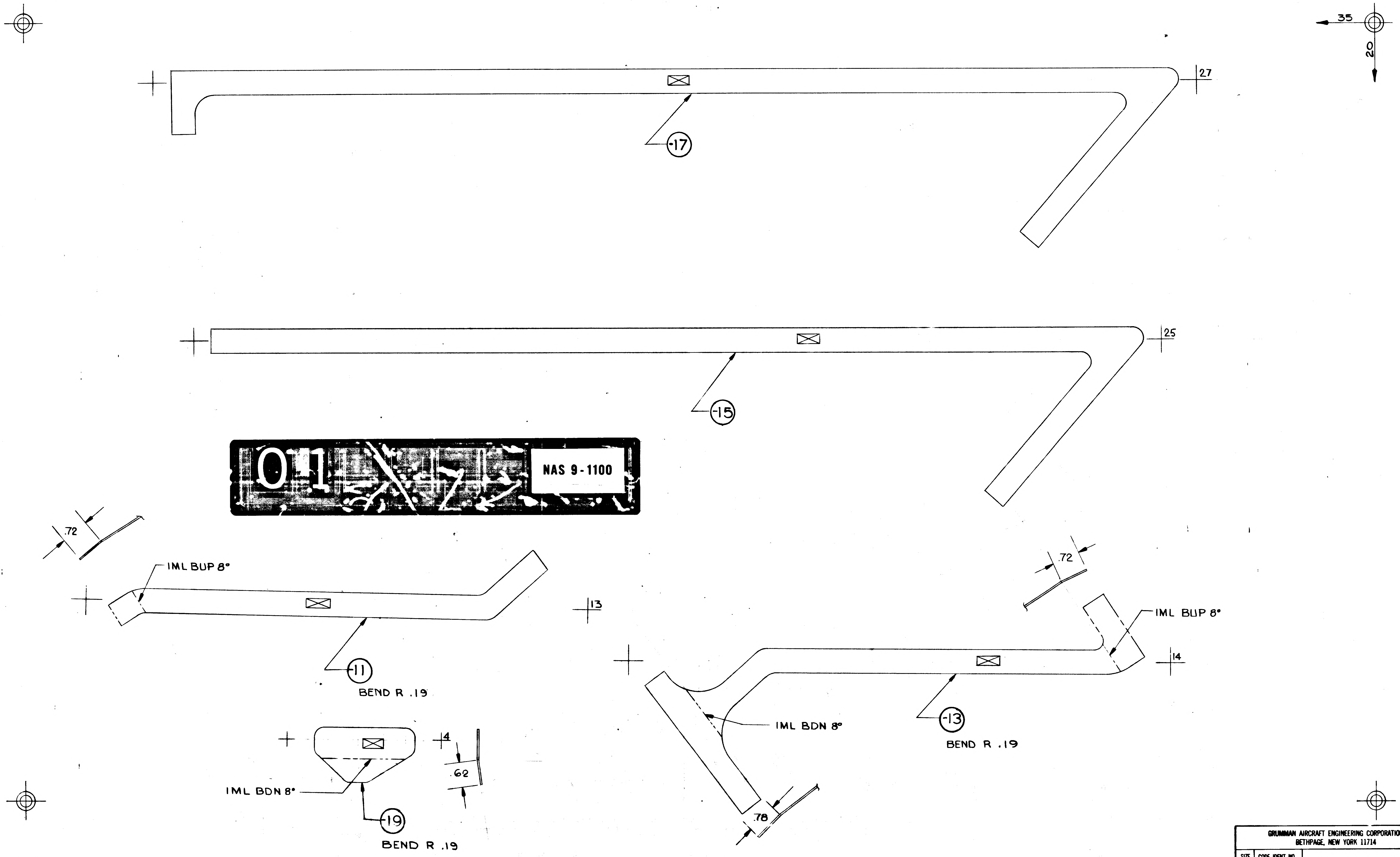
NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐
TOLERANCE ON LOFTED DELINEATIONS IS ± .031	✓

ORIG'L M RKL 10/6/69 | TRANS ON RKL 10/6/69

NOTES.
1 NO TOOLING HOLES PERMITTED IN PARTS.



35
20
.27
-17
.25
-15
.72
IML BUP 8°
-11
BEND R .19
.13
.72
IML BUP 8°
.14
-13
IML BDN 8°
BEND R .19
.4
.62
IML BDN 8°
-19
BEND R .19
.78

011 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18794

SCALE FULL | SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18795

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14 (44)	1 EA
		LM-13(43)	1 EA
		LM-12 (42)	1 EA
		LM-11 (41)	1 EA
LM	LDW280-60503	LM-10(40)	1 EA

PART NO. LDW280-18795-11,-13,-15, -17,&-19

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM

PART NO.

GAEC SCH NO.

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO.	JK(001)		
207	ME-16-	12/19/9	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
XX=±.03, XXX=±.010, 0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD3890 PKG 58

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	A.LITVINOFF 12-8-69		
LAYOUT BY	D.RAGAS DON RAGAS 12-1-69		
CHECKED BY	G.BAUMAN 12-11-69		
GR LEADER	12/16/69		
VEH DES INT	Thoquesen 12-16-69		
STRUCT	NM 12-19-69	PROJ ENGR	12/19/69
STRUCT	H. MARKELOFF 12/19/69	REL GROUP	12/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE ~ QUAD IV ~
LWR R.H ~ FITH SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-18795

SCALE NONE

SHEET 1.00 OF 3.00

ENG 77.1 12-65

CDR 12·19·69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18795-19	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075	.040×2×5	T6	88	
		-17	↕	↕	↕	↕	7075-T6	.040×4×24	NONE	↕	
		-15	↕	↕	↕	↕	↕	.040×4×22	↕	↕	
		-13	↕	↕	↕	↕	↕	.040×2×10	↕	↕	
		LDW280-18795-11	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040×3×12	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030
						T6	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18795
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

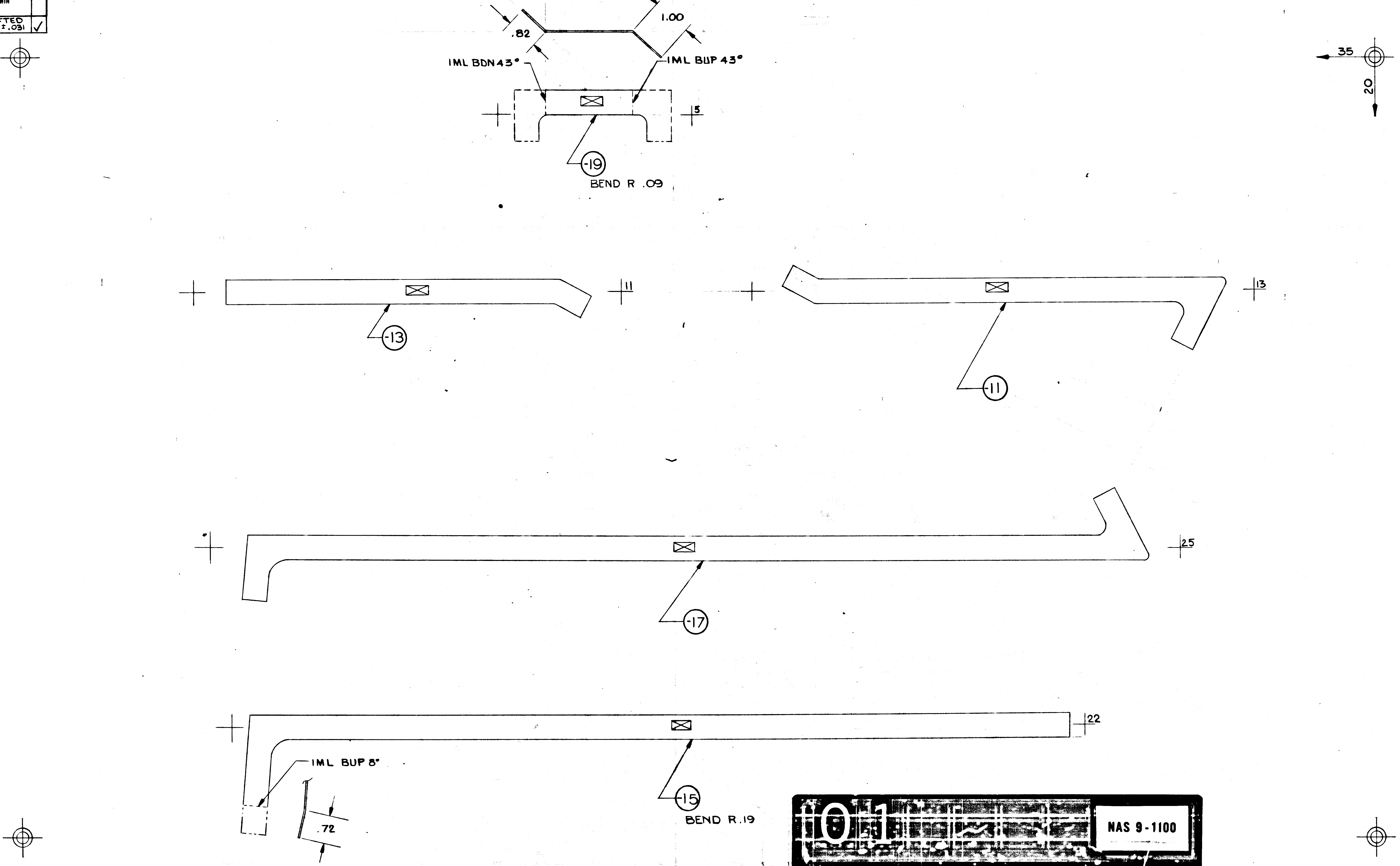
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.031	✓

NOTES

1 NO TOOLING HOLES PERMITTED IN PARTS


.82
1.00
IML BDN 43°
IML BUP 43°
5
-19
BEND R .09
35
20
11
-13
13
-11
25
-17
22
IML BUP 8°
.72
-15
BEND R .19

0 1 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE F	CODE IDENT NO. 26512	LDW280-18795	
SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

ENG 73.5 REV. 5-67

K2

LDW280-18795

LDW280-18795

LDW280-18796

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
LM	LDW280-23539	LM-11(41)	1EA

PART NO. LDW280-18796-25 & -27

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-23539	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
	LDW280-23539	LM-11(41)	1EA
	LDW280-23536	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
LM	LDW280-23536	LM-11(41)	1EA

PART NO. LDW280-18796-17, -19, -21 & -23

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
	LDW280-54533	LM-11(41)	1EA
	LDW280-54531	LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
LM	LDW280-54531	LM-11(41)	1EA

PART NO. LDW280-18796-13 & -15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54533	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
	LDW280-54533	LM-11(41)	2
	LDW280-54531	LM-14(44)	2
		LM-13(43)	2
		LM-12(42)	2
LM	LDW280-54531	LM-11(41)	2

PART NO. LDW280-18796-11

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED
LAST DASH NO. USED -27

GRUMMAN REL INFO
PRIM NO. 207
JK(001)
ME-16-12/12/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS - ANGLES, .XX=±.03 .XXX=±.010 0°±30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE ✓
LCD3994 PKG69

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY E.SICK
LAYOUT BY C.GREEN
CHECKED BY J.D.COBB 12-11-69
GR LEADER 12-12-69
VEH DES INT 12-12-69
STRUCTURE D.R.F. 12-12-69
STRUCTURE N.M. 12-12-69
PROJ ENGR 12/12/69
REL GROUP 12-12

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

~PLATE~
DESCENT STAGE ~ AFT L.H. & R.H.
UPR. & LWR. CAPSTRIP INBRD. SPLICE

SIZE B
CODE IDENT NO. 26512
LDW280-18796
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

12-12-69

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18796-27	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.125 x 2 x 5	NONE	88	
		-25						.160 x 2 x 5			
		-23						.160 x 2 x 5			
		-21						.250 x 2 x 5			
		-19						.125 x 2 x 5			
		-17						.056 x 2 x 5			
		-15						.063 x 2 x 3			
		-13						.040 x 2 x 3			
		LDW280-18796-11	E	PLATE	AL ALLOY SH	QQ-A-250/12	7075-T6	.160 x 2 x 5	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-18796

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

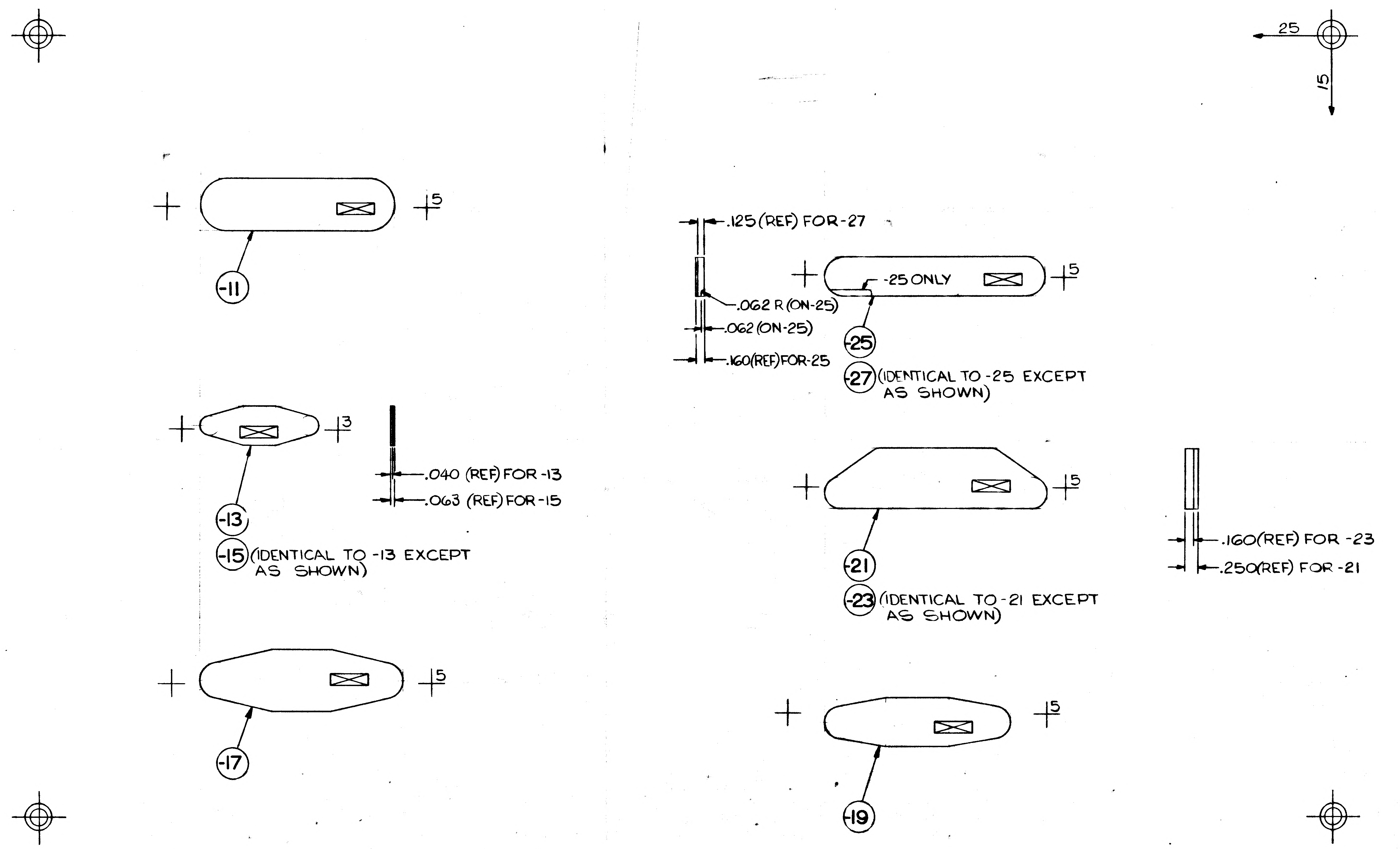
01

NAS 9-1100

4 LDW280-18796

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~[illegible]~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTE
1. NO TOOLING HOLES PERMITTED IN PARTS.



25
15
-11
5
.125 (REF) FOR -27
-25 ONLY
.062 R (ON-25)
.062 (ON-25)
.160 (REF) FOR -25
-25
-27 (IDENTICAL TO -25 EXCEPT AS SHOWN)
-13
3
.040 (REF) FOR -13
.063 (REF) FOR -15
-15 (IDENTICAL TO -13 EXCEPT AS SHOWN)
-21
-23 (IDENTICAL TO -21 EXCEPT AS SHOWN)
.160 (REF) FOR -23
.250 (REF) FOR -21
-17
-19

GRUMMAN AEROSPACE CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
D	26512	LDW280-18796
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18796

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1819
CONTROL INFO NO. LDW280B9724

FOR ✱, DELETE LM-11(41) THRU LM-14(44)
EFF FOR N/A NOTED △

DWG NO.	DASH NO.✱ & QTY/VEH	NEXT ASSY △	CHG NO.
LDW280-18796	-11 (2)	LDW280-54531 -54533	A1
LDW280-18809	-11(2), -21 & -23 (1 EA)	-54531 LDW280-54533	A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PKG 69

(5)

REASON FOR EO: REVISED CAP STRIP/SPLICE PLATE DIMENSIONS

DESCRIPTION OF EO: FOR ✱ DELETED LM-11(41) THRU LM-14(44) FOR N/A'S △

GAEC EO RELEASE: JK 1/19/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-11 (41)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	PSt							Bauman
DATE	1-15-70			1/15/70	1/15/70		1/16/70	1/17/70

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 1819

CDR 012370
ISSUED BY HERB DONNER X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-18797

PART NO. LDW 280-18797 -11 & -13

		MODULE	REQD/MOD
LM	LDW 280-60501	LM-14(44)	1 EA.
		LM-13(43)	1 EA.
		LM-12(42)	1 EA.
		LM-11(41)	1 EA.
LM	LDW280-60501	LM-10(40)	1 EA

PART NO. LDW280-18797-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60523	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60523	LM-10(40)	1

PART NO. LDW280-18797-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60520	LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
LM	LDW280-60520	LM-10(40)	1

PART NO. LDW280-18797-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-60503	LM-14(44)	1 EA
		LM-13(43)	1 EA
		LM-12(42)	1 EA
		LM-11(41)	1 EA
LM	LDW280-60503	LM-10(40)	1 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00								
REV									
SHEET	2.00								
REV									
SHEET	3.00								
REV									

LAST SECT LTR USED

LAST DASH NO. USED -19

GRUMMAN REL INFO

PRIM NO. 207

JK(001) ME-16 12/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED ~~FRACTIONS~~ - DECIMALS – ANGLES

XX=±.03, XXX=±.010, ±0°30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE ✓

LCD 3890 PKG#58

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE

DRAWN BY J. BIANCHINO

LAYOUT BY V. CHRISTINA

CHECKED BY Ben MAG. 12/16/69

GP LEADER 12/17/69

VEH DES INT Thoyirsen 12-17-69

STRUCTURES NM 12-19-69

STRUCTURES N. MARKELOFF 12/19/69

PROJ ENGR 12/19/69

REL GROUP 12/19/69

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP
DESCENT STAGE- FITH SHIELD

SIZE B

CODE IDENT NO. 26512

LDW280-18797

SCALE NONE

SHEET 1.00 OF 3

CDR 12·19·69

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-18797-19	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040×5×6	NONE	83	
		-17	↕	↕	↕	↕	7075-T6	.050×3×10	NONE	↕	
		-15	↕	↕	↕	↕	↕	.050×3×10	↕	↕	
		-13	↕	↕	↕	↕	↕	.040×5×14	↕	↕	
		LDW280-18797-11	E	STRAP	AL ALLOY SH	QQ-A-250/12	7075-T6	.040×2×24	NONE	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T6	AL HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-18797
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

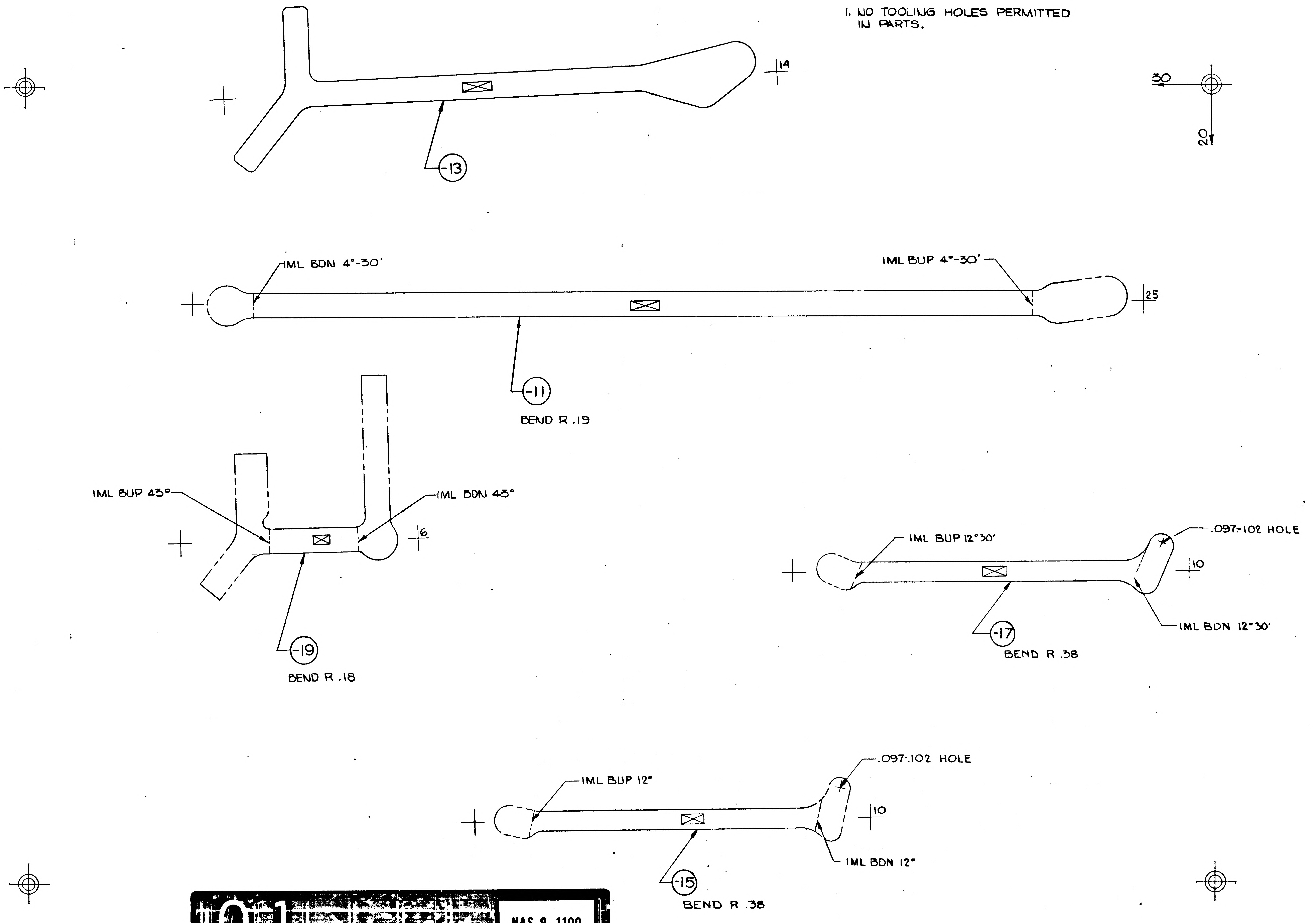
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ±.03	✓

NOTE :

1. NO TOLERANCE HOLES PERMITTED IN PARTS.


14
-13
30
20
IML BDN 4°-30'
IML BUP 4°-30'
25
-11
BEND R .19
IML BUP 43°
IML BDN 43°
6
-19
BEND R .18
IML BUP 12°30'
.097-.102 HOLE
10
IML BDN 12°30'
-17
BEND R .38
IML BUP 12°
.097-.102 HOLE
10
IML BDN 12°
-15
BEND R .38

101 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
F	26512	LDW280-18797
SCALE FULL		SHEET 3.00

FOR PHOTO REPRODUCTION

LDW280-18797

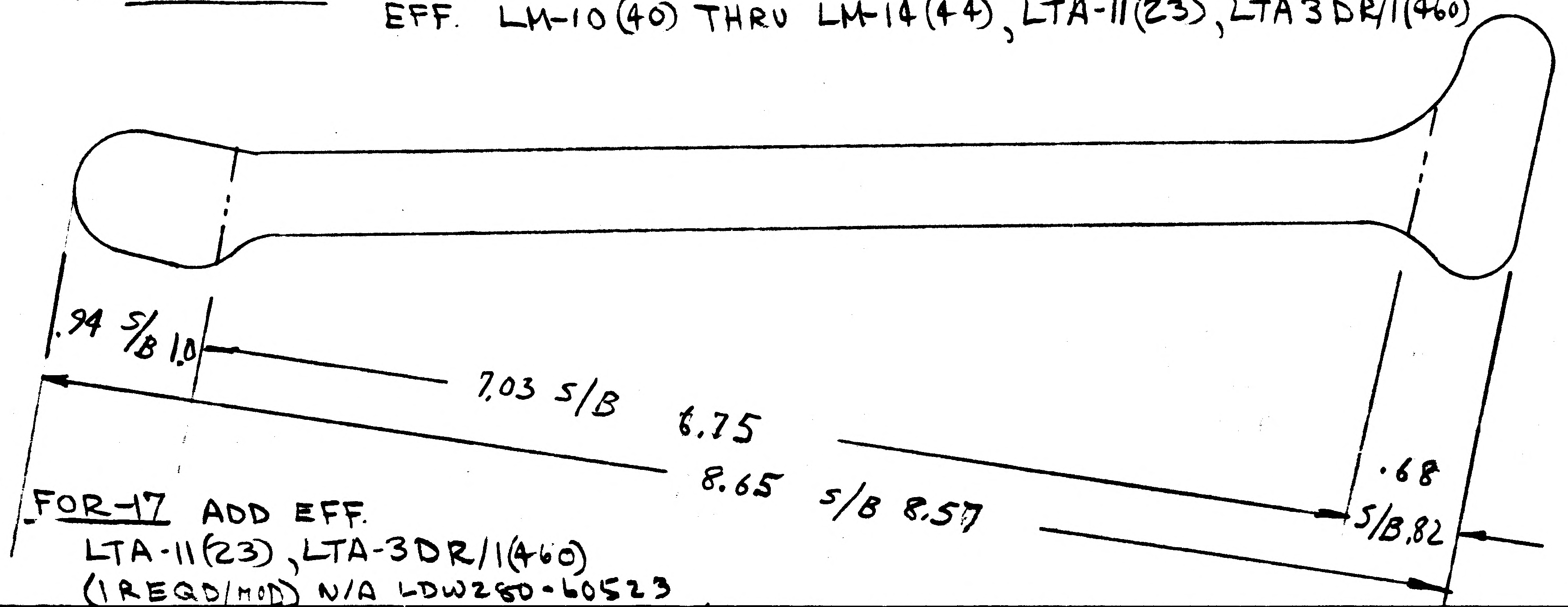
LDW280-18797

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-18797
EO NO. A1
CONTROL INFO N. LMZ-5834

IN F/D, B/M & MOD BLK ADD -21 REPLACING -15
MAT'L, QTY FOR-21 REMAIN THE SAME AS-15
N/A FOR -21 LDW280-60520
EFF. LM-10(40) THRU LM-14(44), LTA-11(23), LTA3DR/1(460)



FOR-17 ADD EFF.
LTA-11(23), LTA-3DR/1(460)
(1 REQD/MOD) N/A LDW280-60523

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ ✓ LCD 3890 (2)

REASON FOR EO: PART IS TOO LONG.

DESCRIPTION OF EO: ADDED -21, REMOVED -15
FOR-17 ADDED EFF. LTA-11(23) LTA-3DR/1(460)

GAEC EO RELEASE: R

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10(40) THRU	
LM		LM14(44)	
LM	LTA-11(23)	LTA 3DR/1(460)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓ -15
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					KC			
DATE	1-12-70			1/9/70	1/6/70	1-6-70	1-14-70	1/7/70
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STRAP D/S - FITH SHIELD
DRAWING NO.: LDW280-18797
EO NO.: A1

ISSUED BY LIAISON DON RAGAS X3604 SECTION VDI GROUP NO. 335 PL 2

01 NAS 9-1100